

03/20-62

8mm VIDEO CAMCORDER

# Instruction Manual

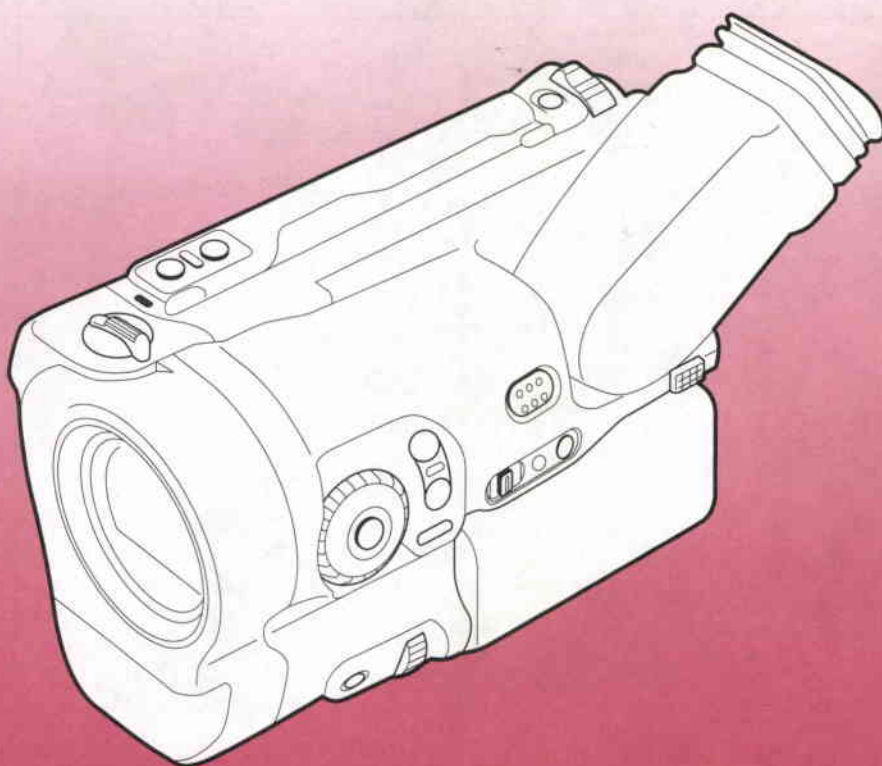
Introduction

Basic  
Operation

Advanced  
Functions

Eye Control

Additional  
Information



# Canon

## UC-X1*Hi*

# Hi8

# Important Usage Instructions

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**CAUTION:**

TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). NO USER SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

**WARNING:**

TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS PRODUCT TO RAIN OR MOISTURE.

**CAUTION:**

TO REDUCE THE RISK OF ELECTRIC SHOCK AND TO REDUCE ANNOYING INTERFERENCE, USE THE RECOMMENDED ACCESSORIES ONLY.

# Handy Guide to Eye Control

## Getting Started

The first time you use Eye Control, you have to calibrate the camera. It's a lot easier than it sounds. All you need to do is look at a couple of dots in the viewfinder so the camera can get used to your eyes. The camera remembers what it learns — and it can keep on adding to it. The more often you calibrate it, the more accurate it will become.

The camera's EYE CONTROL switch has positions 1 and 2, so two different people can have their own personal Eye Control data stored and updated in this way. There's also a special ★ position which the camera uses to store Eye Control data temporarily. Every new calibration at this setting cancels the previous ★ calibration automatically. This means that all your family and friends can try using Eye Control without the camera becoming confused.

1



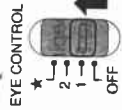
Before you begin, you'll have to charge the battery pack and attach it to the camera. Or if you're in a hurry to get started, just plug the camera into the mains.

2



Now turn the OPERATE switch to the CAL position.

3



Set the EYE CONTROL switch to 1 (or 2).

Set the switch to this same number every time you use Eye Control. Make sure no-one else uses your number. (If positions 1 and 2 are taken already, you can use the ★ position.)

4



Put your eye to the viewfinder and press the start/stop button. (If you're using the ★ position, you don't need to press it yet — go straight to step 5.)

7



You can take your eye away from the viewfinder now. Turn the OPERATE switch to the CAMERA position. You're ready to start using Eye Control.

5



Look at the yellow dot, and press the start/stop button again. Keep looking at the dot until it stops flashing.



Keep your eye to the viewfinder until you've finished calibrating the camera.



If TRY AGAIN flashes in the viewfinder, you'll have to press the start/stop button and start again.

6



Another yellow dot appears. Look at it, and press the start/stop button one more time.



8



If you look into the viewfinder, you'll see the Eye Control frame. It follows the movements of your eye around the screen.



You don't have to look at the frame, just look at your subject and the camera will focus on it.

# Troubleshooting

If you're having trouble calibrating the camera, or if Eye Control doesn't seem to be working properly, there's probably an easy way to solve the problem.



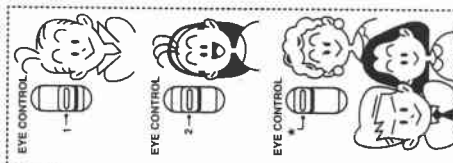
Hold the camera steady, and make sure it's horizontal.



Keep your eye to the eyecup, and look straight into the viewfinder. Can you see all four corners of the picture?



Eye Control may not work well if you're looking into the viewfinder from an angle.



If different people calibrate the camera using the same Eye Control number, it will become confused. You'll have to cancel the old calibrations and start again. (Just press the C.RESET button when you begin calibration.)

If you set the EYE CONTROL switch to the ★ position, everyone can try using Eye Control.



Look away from the sun if you're calibrating the camera outside. Be careful light doesn't shine into the viewfinder.



Have you tried keeping both eyes open while you use Eye Control? You might find this works better.



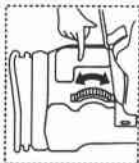
Try not to blink or move your eyes suddenly when you're calibrating the camera.



It's a good idea to calibrate the camera again the first time you use it in a new lighting situation. Don't cancel your original calibration, but keep adding to it. This teaches the camera how your eye reacts to different kinds of lighting.



Don't let your hair get in your eyes.



Make sure the viewfinder is clearly focused, and the viewfinder lens is clean.



If you find Eye Control a bit tiring, you're probably concentrating on the Eye Control frame, instead of looking naturally at your subject.

## Wearing glasses



You should be able to use Eye Control wearing glasses, although it might work better without them.



If you do take your glasses off, remember to cancel your old calibrations (or use another Eye Control number).



Make sure your glasses are on straight, and lined up with the viewfinder.



You may find Eye Control doesn't work as well as usual outdoors on bright days.



You could have problems if you're wearing mirrored or multi-coated glasses.

There may be times when Eye Control just doesn't work as well as you'd like. As a last resort, you can always turn it off.

# Introducing the UC-X1Hi

## Eye Control



Control focus and other functions without lifting a finger. The UC-X1Hi knows what you are looking at, and how best to record it.

## Hi8



The video format of the future, Hi8 gives you approximately 400 lines of horizontal resolution for stunning, professional-quality images.

## Optical Image Stabilizer



Canon's revolutionary Vari-Angle Prism compensates for the slightest movement of the camera, producing stable images without sacrificing picture quality.

## Digital functions



The UC-X1Hi features advanced digital technology that allows you to add special effects and varied scene transitions to your recordings.

## Hi-fi stereo sound



The compact integral microphone offers the depth and realism of AFM (Audio Frequency Modulation) in full dynamic stereo.

## Digital picture quality



Canon's new Digital Integrated Circuit delivers colour reproduction and picture detail unrivalled by conventional technology.

## 24× zoom



A 12× internal-focus lens and a 2× digital zoom combine to provide continuous multi-speed zooming all the way up to 24× magnification.

## Colour viewfinder



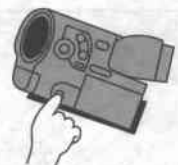
The ability to see your subject in living colour as you shoot makes it easier to compose each scene for maximum impact. With around 166,000 pixels, the viewfinder gives outstanding image resolution.

## Powerful recording programs



Six recording programs deal with everything from simple point-and-shoot operation to the most challenging recording conditions.

## Auto or manual operation



In addition to some of the most sophisticated automation found in any camcorder, the UC-X1Hi offers manual control of functions such as focus, exposure, white balance and shutter speed.

## Menu system



From world clock to wind screen, the powerful menu system allows you to control and customise many of the camera's settings.

## Remote control



The supplied wireless controller operates both recording and playback from as far away as 5 metres (16 feet).

## Lithium ion power supply



The UC-X1Hi features the latest in portable power technology. Lithium ion battery packs are smaller, lighter and easier to use than traditional power sources.

# Welcome to Hi8

First, we'd like to thank you for buying the UC-X1Hi. Its advanced technology makes it very easy to use — you will soon be making high-quality videos which will give you pleasure for years to come.

To get the most out of your new camcorder, you should read this manual thoroughly — there are many sophisticated features which will add to your recording enjoyment.

To get started, you will need to read these sections:

“Basic Recording”

“Power Sources”


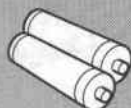

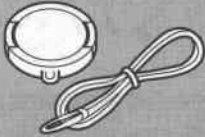

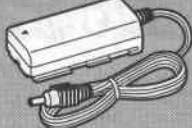
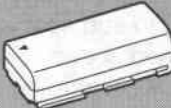
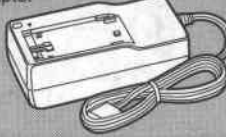
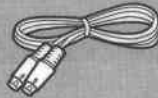

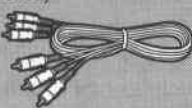
“Cassettes”

“Preparing the Camera”

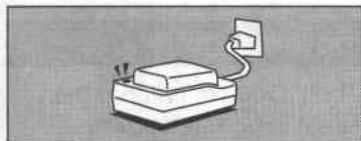
Then you can go on to find out about the more advanced features.

As well as using the alphabetical index, you can look up the different parts and functions in the sections called “Nomenclature” and “Viewfinder Displays.” There's also a “Troubleshooting” section in case you run into any problems.

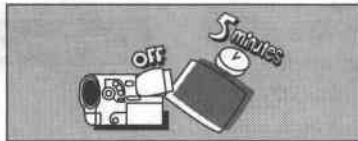
Check that this package contains the following accessories:

WL-53 Wireless Controller 	Two R03 AAA batteries 	Lithium button battery 	Lens cap and lens cap cord 
SS-400 Shoulder Strap 	DC-900 DC Coupler 	BP-911 Battery Pack 	CA-900 Compact Power Adapter 
S-150 S-video Cable 	PC-170ST Stereo SCART Cable (Europe) 	STV-150 Stereo Video Cable (Asia, Oceania and Latin America) 	

And while you are finding out how your camcorder works, remember:



The battery pack must be charged before it can power the camcorder.



The camcorder turns off automatically if you leave it in record pause mode for more than about five minutes.



If you want the superior picture quality of Hi8, you have to use Hi8 tapes. If you use standard 8mm cassettes, you will get standard 8mm recordings.

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## Eye Control

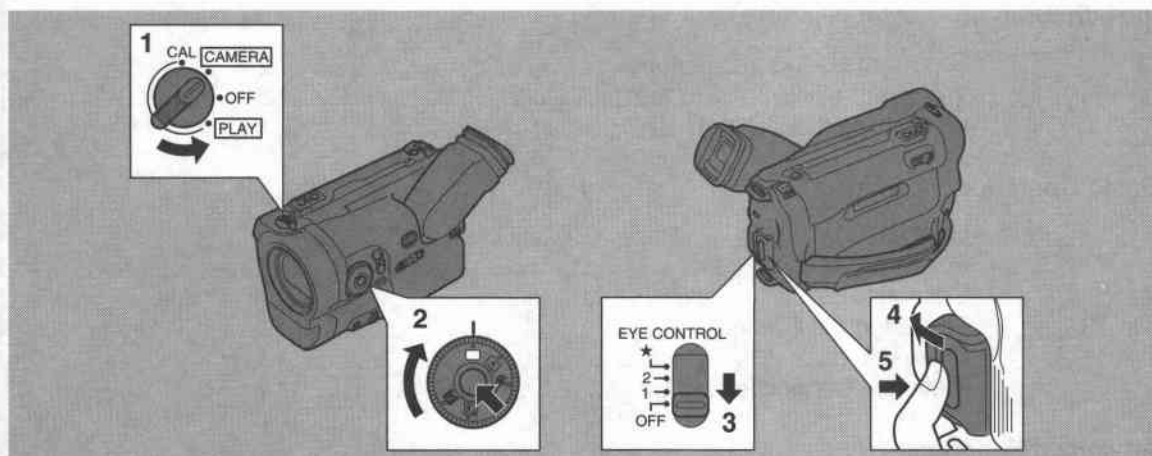
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# Basic Recording



## Before you start recording:

Complete the following steps:

- Attach a power source (p. 7).
- Load a cassette (p. 11).
- Adjust the viewfinder, fasten the grip belt and take off the lens cap (p. 12).

You may also want to install the backup battery (p. 10) in order to set the date and time display (p. 22).

## To record:

1. Set the **OPERATE** switch to **CAMERA**.
2. Turn the program selector to the ☐ position.
  - This selects the camera's Easy Recording program. It allows you to simply point and shoot without making any manual adjustments (see p. 27).
3. Set the **EYE CONTROL** switch to **OFF**.
4. Open the **STANDBY** cover.
  - The operation indicator lights up and **PAUSE** appears in the viewfinder — the camera is now in "record pause mode."
5. Press the **start/stop** button to begin recording.
  - The tally lamp flashes rapidly and **REC** appears in the viewfinder.

## 6. Press the start/stop button again to pause recording.

- The camera returns to record pause mode and **PAUSE** reappears in the viewfinder.
- You can stop and restart recording as often as you like by pressing the start/stop button.
- The camera will turn itself off if you leave it in record pause mode for more than about five minutes. To return to record pause mode, close and reopen the **STANDBY** cover, or set the **OPERATE** switch to **OFF** and then back to **CAMERA**.

## 7. Close the **STANDBY** cover.

- As long as the **OPERATE** switch is set to the **CAMERA** position, you can use the **STANDBY** cover to turn the camera on and off. This makes it easy to save battery power, and prevents accidental operation of the start/stop button.

## When you have finished recording:

- Replace the lens cap.
- Unload the cassette.
- Set the **OPERATE** switch to **OFF**.
- Disconnect the power source.



# Power Sources

Before operating your camera, you will need to use the CA-900 Compact Power Adapter to:

**provide power from a mains outlet  
or  
charge a battery pack**

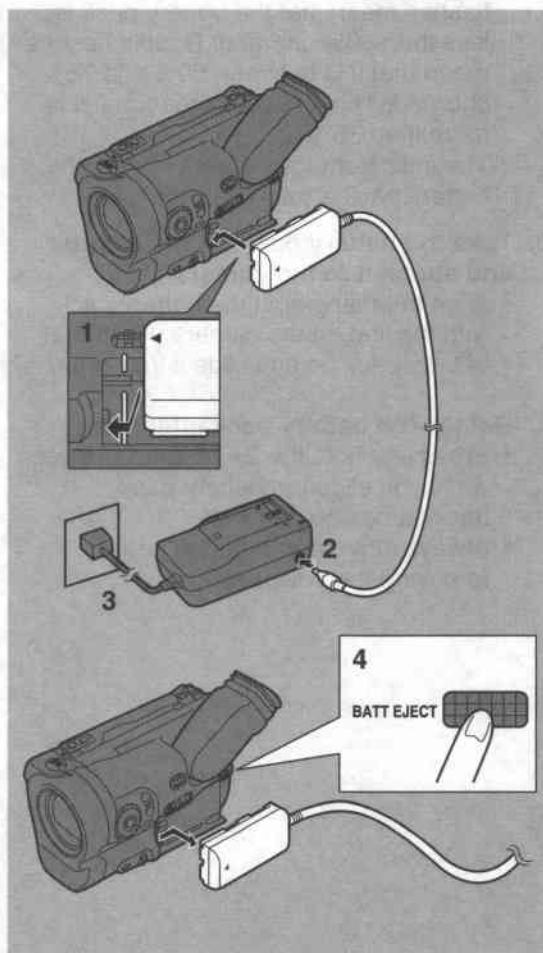
## Notes:

- The CA-900 Compact Power Adapter converts current from a household power outlet (100–240 V AC, 50/60 Hz) to the DC current used by your camera.
- If the adapter is used next to a TV, it may cause the TV to emit noise — move the adapter away from the TV or the aerial cable.
- See the CA-900 instruction manual for further details.

## Connecting the camera to a mains outlet

Use the CA-900 Compact Power Adapter and the DC-900 DC Coupler to provide your camera with instant power from a mains outlet.

- 1. Attach the DC coupler to the camera.**
  - Align the triangle on the DC coupler with the line on the camera. Push the DC coupler on and slide it into place.
- 2. Connect the DC coupler to the adapter.**
- 3. Plug the adapter into a mains outlet.**
- 4. Detach the DC coupler after use.**
  - Press and hold the BATT EJECT switch while you slide the DC coupler backwards and pull it off.
  - Always turn the camera off before removing the power source.



## Charging and attaching the battery pack

Your battery pack was partially charged before it left the factory. It should have enough power for you to check that your camera is working properly. However, you must charge the battery pack fully if you want it to power the camera for more than a few minutes.

Use the CA-900 Compact Power Adapter.

### 1. Attach the battery pack to the adapter.

- Align the triangle on the battery pack with the line on the adapter. Push the battery pack down and slide it into place.
- Make sure the DC coupler is not connected.

### 2. Plug the adapter into a mains outlet.

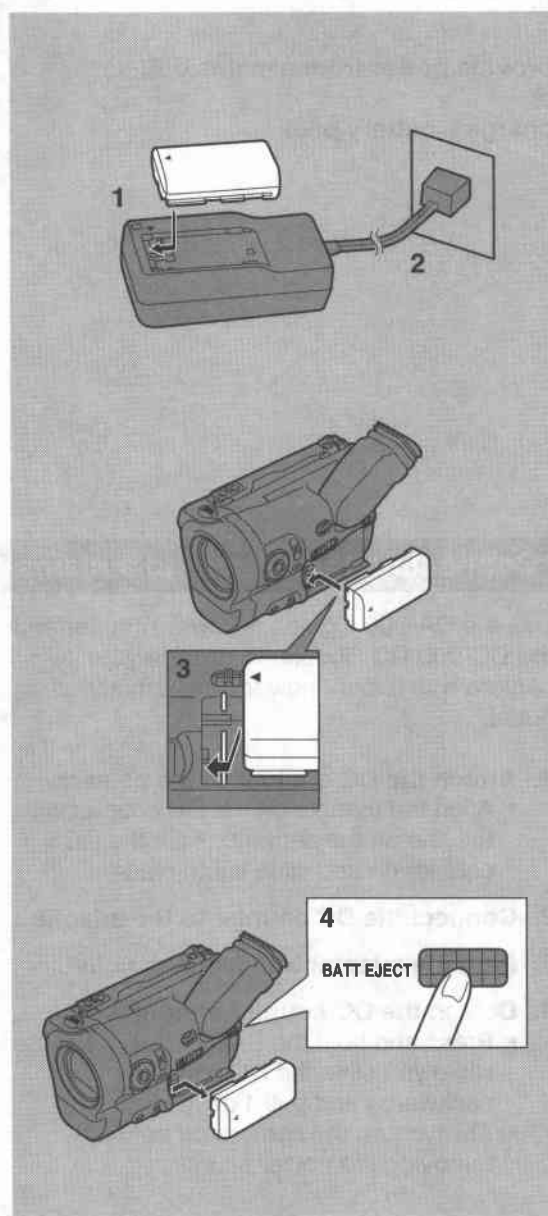
- The charge indicator flashes red to show that charging is in progress. Single flashes mean that the battery pack is less than 50% charged. Double flashes mean that it is between 50% and 75% charged. Triple flashes mean that it is more than 75% charged.
- The indicator glows steadily when the battery pack is fully charged.

### 3. Take the battery pack off the adapter and attach it to the camera.

- Align the triangle on the battery pack with the line on the camera. Push the battery pack on and slide it into place.

### 4. Detach the battery pack after use.

- Press and hold the BATT EJECT switch while you slide the battery pack backwards and pull it off.
- Always turn the camera off before removing the power source.



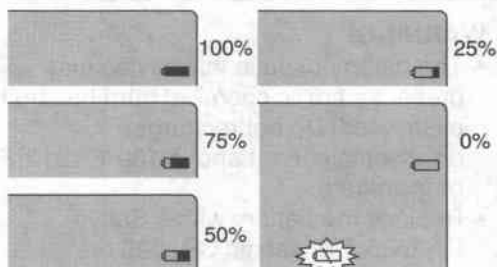
## Charging and recording times

<i>This much charging time:</i>		<i>Gives you this much continuous recording time:</i>
50%	30 minutes	20 minutes
75%	60 minutes	30 minutes
100%	120 minutes	45 minutes

- These times vary — the safest policy is always to have two or three times as many battery packs as you think you will need.
- You will get more recording time if you use the STANDBY cover to turn the camera off between shots, instead of leaving it in record pause mode.
- Recording time will be shorter than usual at low temperatures. You can use the battery pack between 0° and 40°C (32° to 104°F), but it works best between 10° and 30°C (50° to 86°F).
- If the battery pack starts to give you much less recording time than usual (at normal temperatures), it has reached the end of its life and must be replaced.

## How much power is left?

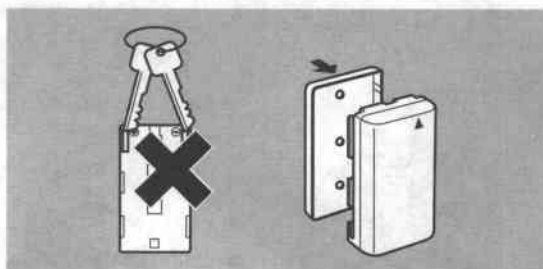
The indicator in the viewfinder shows you approximately how much charge the battery pack has left:



## When to recharge

You can recharge a lithium ion battery pack whenever it is convenient. Unlike a conventional battery pack, it does not have to be fully discharged first. However, as the battery pack will naturally discharge itself over time, it is best to charge it the same day you plan to use it, or the day before.

## Taking care of the battery pack



### Always attach the terminal cover.

- Do not allow any metal objects to touch the terminals, as this can cause a short circuit and damage the battery pack. Attach the terminal cover whenever the battery pack is not being used.

### Keep the terminals clean.

- The camera, adapter or battery pack will not work properly if the terminals are dirty. Check them before use, and wipe them with a dry cloth or tissue if necessary.

### Disconnect the battery pack when you are not using it.

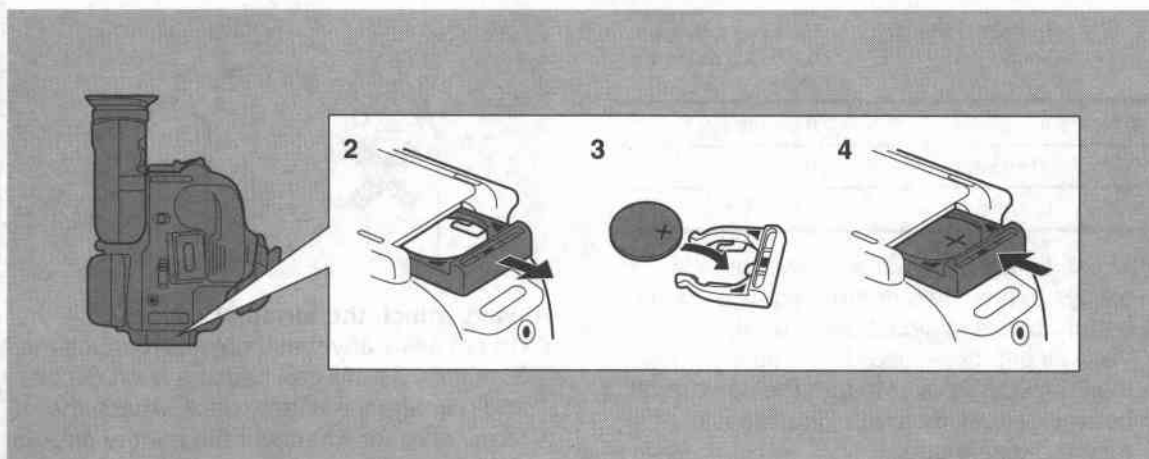
- Even when it is turned off, the camera will continue to slowly drain power from the battery pack.

## DANGER!


### Treat the battery pack with care.

- Keep it away from fire (or it might explode).
- Do not expose the battery pack to temperatures greater than 60°C (140°F). Do not leave it near a heater, or inside a car in hot weather, for example.
- Do not try to disassemble or modify it.
- Do not drop or knock it.
- Do not get it wet.

## Installing the backup battery



Even when the camera is turned off, it can remember the date and time and other settings. Its memory is powered by a CR2025 lithium button battery with a life span of about a year.

The  mark flashes in the viewfinder if you have not installed the backup battery, or if it is almost exhausted.

1. **If you are replacing an old battery, attach a power source to the camera.**
  - The camera's memory will be erased if the main power source and the backup battery are both removed.
2. **Pull out the battery holder.**
3. **Place the battery in the holder with the + side facing upwards.**
  - Do not pick up the battery using tweezers or other metal tools — this may cause a short circuit.
  - Wipe the battery with a clean, dry cloth to ensure proper contact.
4. **Click the holder back into place.**

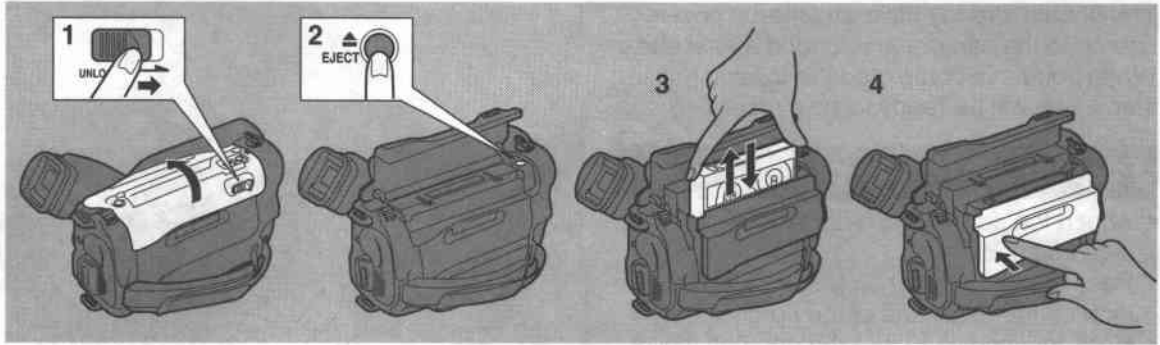
### WARNING!

- The battery used in this device may present a fire or chemical burn hazard if mistreated. Do not recharge, disassemble, heat above 100°C (212°F) or incinerate.
- Replace the battery with a Sanyo CR2025, Panasonic CR2025 or Duracell DL2025B. Use of another battery may present a risk of fire or explosion.
- The used battery should be handed back to the supplier for safe disposal.

### Cautions:

- Keep the battery out of reach of children — if it is swallowed, contact a physician immediately.
- Do not disassemble, heat, or immerse the battery in water, to avoid the risk of explosion.

# Cassettes



Use video cassettes marked with a **Hi8** (E5/P5 types) or **P5** (P5 type).

## Loading and unloading

Cassettes can be loaded and unloaded with the camera turned off, as long as a power source is attached.

1. **Slide the UNLOCK switch and open the cassette compartment cover.**
2. **Press the EJECT button and wait for the cassette compartment to open.**
3. **Load or unload the cassette.**
  - Insert the cassette gently with the window facing out.
  - Remove the cassette by pulling it straight out.
4. **Press the **PUSH** mark on the compartment until it clicks, and wait for it to close.**
5. **Click the cover back into place.**

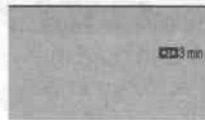
## About Hi8

- There are two types of Hi8 cassette: the standard Metal-P, and for the highest quality recordings, Metal-E.
- To record or play back in the Hi8 format, you need both a Hi8 cassette and a Hi8 camcorder.
- Standard 8mm camcorders cannot play back Hi8 recordings. However, a Hi8 camcorder can record or play back in either format, depending on the tape used.
- The superior quality of Hi8 can best be appreciated on a TV which has an S-video input terminal.

## How much tape is left?



This indicator in the viewfinder shows you how much tape remains.



It counts down the last three minutes so you know just when to change the cassette.



Finally it tells you when you have completely run out of tape.

## Notes:

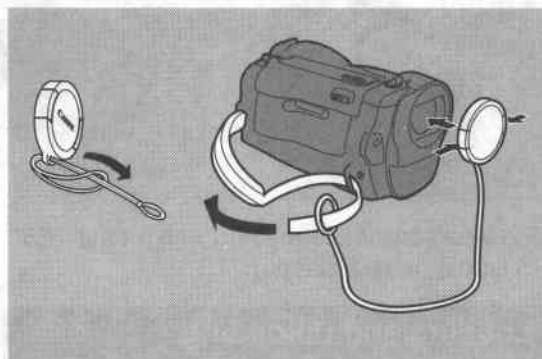
- See p. 25 for information on changing the tape speed and protecting your recordings from accidental erasure.
- After loading a cassette, use record search (p. 26) to find the point where you want to start recording.
- Do not interfere with the cassette compartment while it is opening or closing automatically.
- Do not leave the cassette in the camera after use. Return it to its case and store it in a cool, clean, dry place.
- The holes in the back of the cassette are used for transferring information. Do not cover them.

# Preparing the Camera

You should already have attached a power source to the camera and loaded a cassette. When you have completed the following steps, you will be ready to start recording.

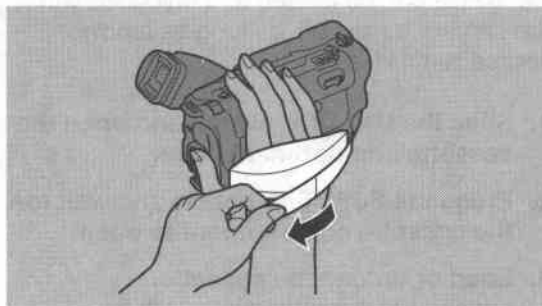
## Prepare the lens cap

- Attach the cord to the eyelet on the lens cap, as shown.
- Pass the end of the grip belt through the loop on the other end of the cord.
- Hook the lens cap on to the grip belt while you are recording, and place it over the lens when you have finished.



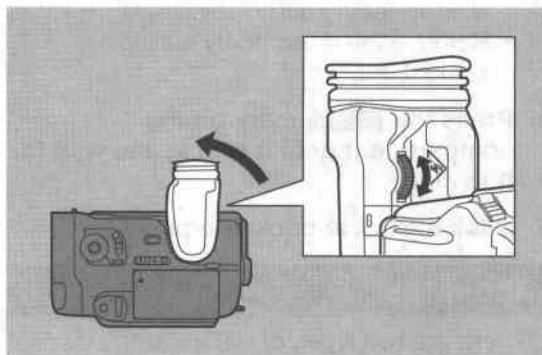
## Fasten the grip belt

- Release the Velcro fastening and hold the camera with your right hand while you adjust the belt with your left.



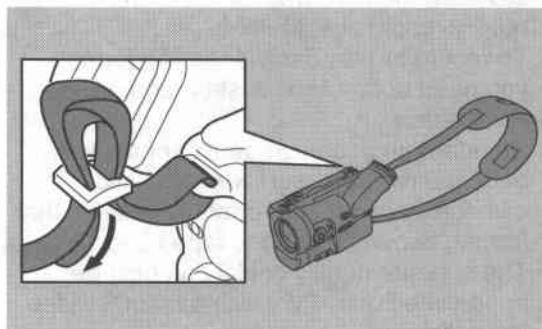
## Adjust the viewfinder

- Put the camera in record pause mode. (Set the OPERATE switch to CAMERA and open the STANDBY cover.) Raise the viewfinder to the vertical position, and adjust it to suit your eyesight by turning its focusing wheel until the viewfinder displays are clearly focused.
- The viewfinder rotates through 90° to give a choice of shooting positions.

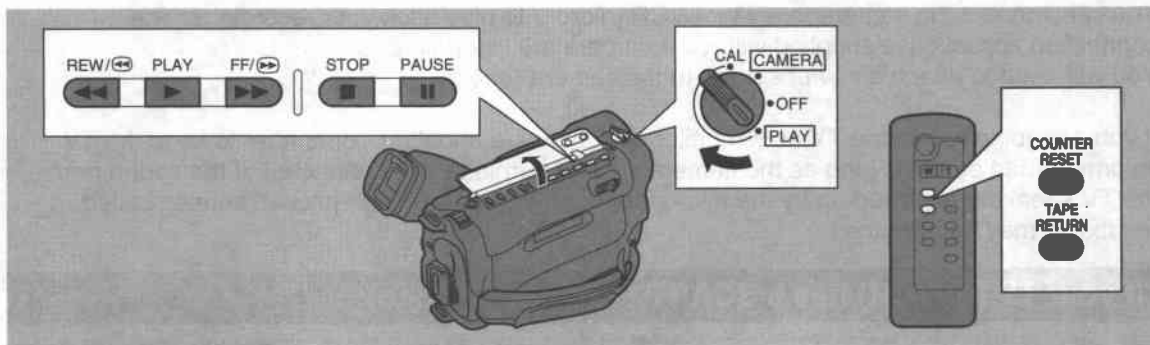


## Attach the shoulder strap

- For extra security and portability, attach the shoulder strap before using the camera.
- Pass the ends through the attachment bars and adjust the length as shown.







You can use the viewfinder screen for instant, on-the-spot playback.

To play back your recordings on a TV, see p. 14–17.

To use the wireless controller, see p. 21.

## 1. Attach a power source and set the OPERATE switch to PLAY.

- The operation indicator lights up.

## 2. Load the cassette.

## 3. Press the PLAY ► button to start playback.

- To end playback, press the STOP ■ button.
- To wind the tape forwards, stop playback and press the FF ►► button.
- To wind the tape backwards, stop playback and press the REW ◀◀ button.

## Special playback

### Still playback

Press the PAUSE || button. To resume normal playback, press it again, or press the PLAY ► button. The camera automatically goes into stop mode after about five minutes' still playback.

### Fast forward playback

To play back the recording at about 7 times normal speed, press and hold the FF ►► button during normal playback.

### Rewind playback

For reverse playback at about 5 times normal speed, press and hold the REW ◀◀ button during normal playback.

## High-speed search

To play back the recording at about 11 times normal speed, press and hold the FF ►► button during normal fast forward.

For reverse playback at about 11 times normal speed, press and hold the REW ◀◀ button during normal rewind.

## Tape return

Use the wireless controller's TAPE RETURN button to quickly return to a scene you want to see again:

1. **Press the COUNTER RESET button during playback if you come across a scene you want to watch again later.**
  - The tape counter is reset to 0:00:00.
2. **When you have ended playback, press the TAPE RETURN button.**
  - The tape rewinds and stops when the counter nears 0:00:00.
  - You can cancel tape return by pressing the STOP ■ button.
3. **Start playback.**

### Notes:

- Double these special playback speeds for recordings made in LP mode (see p. 25).
- Noise bars appear on the screen during special playback and the soundtrack cannot be heard. On certain TVs the picture may roll and divide, or appear in black and white, and the high-speed search picture may not be visible.
- During still playback, the picture flickers, and fast action scenes may appear blurred.
- The tape counter is reset when a cassette is loaded.

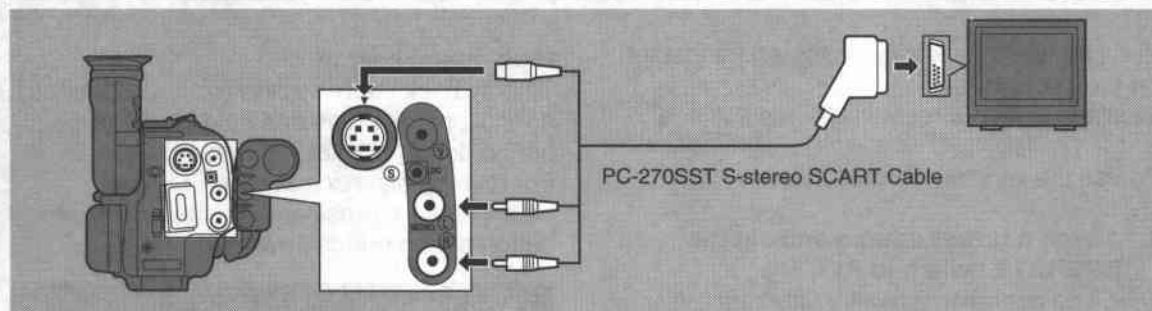


# Playback Connection

You can connect the camera to a TV or VCR in order to play back your recordings. The connection accessories supplied with your camera are listed on p. 3. You will need to attach a power source to the camera (see p. 7).

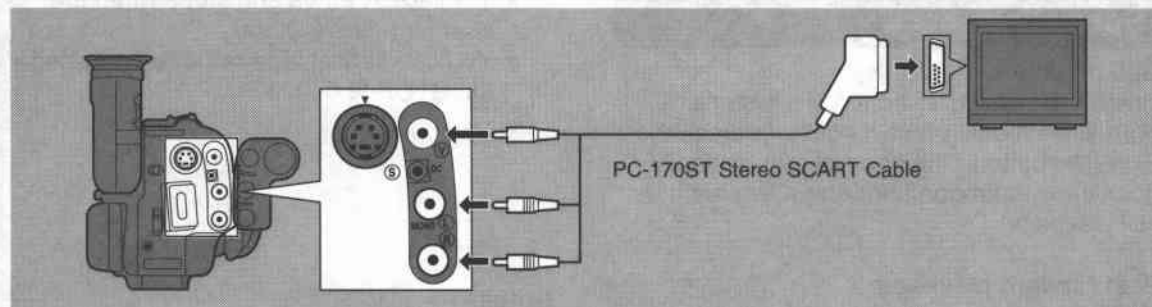
If you are going to use the TV as a monitor while you are shooting, remember to keep the TV volume turned down as long as the camera's audio terminals are connected. If the sound from the TV speakers is picked up by the microphone, an unpleasant high-pitched squeal, called feedback, may be produced.

## If your TV (or VCR) has a SCART terminal (S-video):



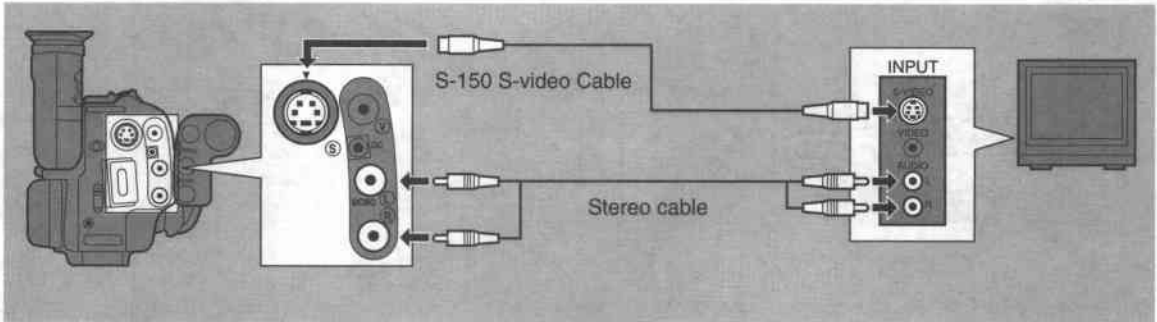
1. **Connect the camera to the TV (or VCR).**
  - Use the PC-270SST S-stereo SCART Cable. Connect the white plug to the white audio terminal **L** (left). Connect the red plug to the red audio terminal **R** (right). Connect the S-video plug to the S-video terminal **S**.
2. **If you are connecting the camera to a VCR, set the input selector on the VCR to LINE.**
  - See your VCR instruction manual for details.

## If your TV (or VCR) has a SCART terminal (without S-video):



1. **Connect the camera to the TV (or VCR).**
  - Use the PC-170ST Stereo SCART Cable. Connect the white plug to the white audio terminal **L** (left). Connect the red plug to the red audio terminal **R** (right). Connect the yellow plug to the yellow video terminal **V**.
2. **If you are connecting the camera to a VCR, set the input selector on the VCR to LINE.**
  - See your VCR instruction manual for details.

## If your TV (or VCR) has an S-video input terminal:



### 1. Connect the camera to the TV (or VCR).

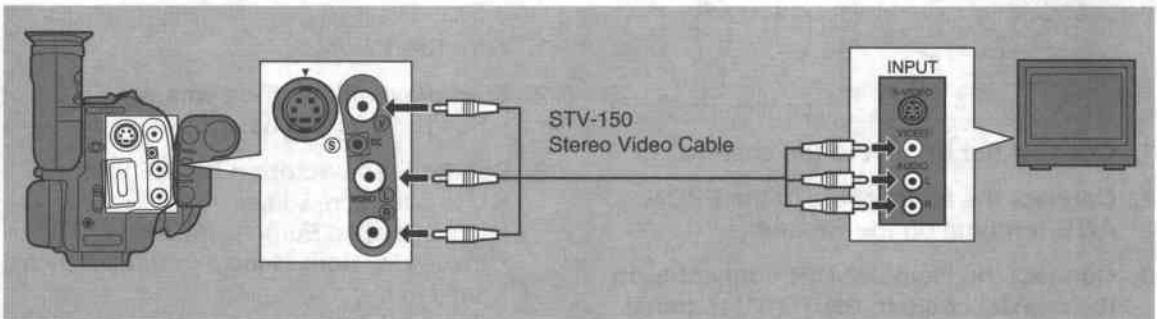
- Use the S-150 S-video Cable to connect the S-video terminal (S).
- Use a stereo cable, or the STV-150 Stereo Video Cable, to connect the audio terminals. Connect the white plug to the white audio terminal (L) (left). Connect the red plug to the red audio terminal (R) (right). Do not connect the yellow plug if you are using the STV-150 Stereo Video Cable.

### 2. Set the TV/VIDEO selector on the television to VIDEO.

### 3. If you are connecting the camera to a VCR, set the input selector on the VCR to LINE.

- See your VCR instruction manual for details.

## If your TV (or VCR) has audio/video input terminals:



### 1. Connect the camera to the TV (or VCR).

- Use the STV-150 Stereo Video Cable. Connect the white plug to the white audio terminal (L) (left). Connect the red plug to the red audio terminal (R) (right). Connect the yellow plug to the yellow video terminal (V).

### 2. Set the TV/VIDEO selector on the television to VIDEO.

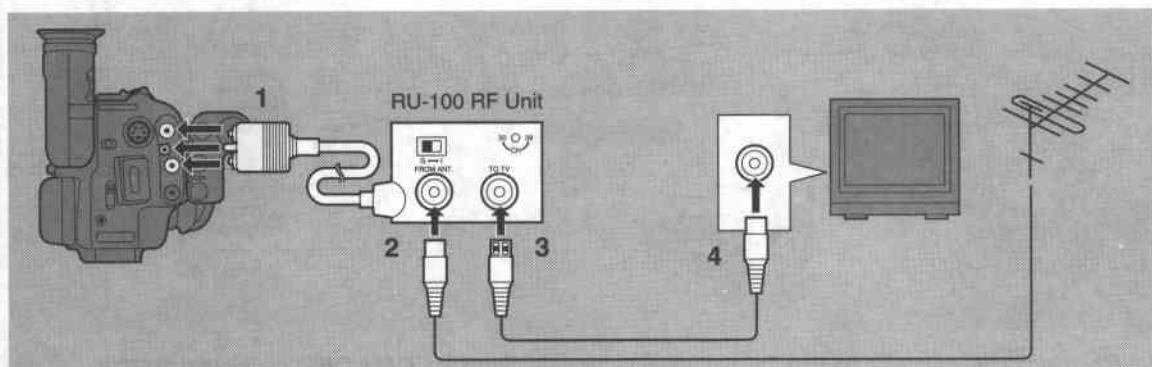
### 3. If you are connecting the camera to a VCR, set the input selector on the VCR to LINE.

- See your VCR instruction manual for details.

## To obtain a mono output

Connect the cable to the camera's (L) terminal, but do not connect the (R) terminal. This will give an (L) + (R) monaural output.

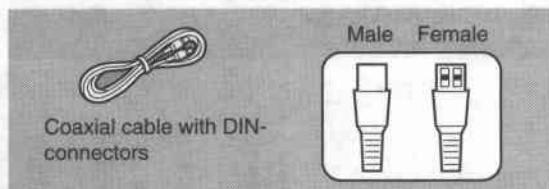
## If your TV does not have audio/video input terminals (Europe):



If your TV is already hooked up to a VCR, you can connect the camera to the VCR instead of the TV. Follow the instructions on p. 14 or 15.

To connect the camera directly to a TV which does not have audio/video terminals, you will need to use the optional RU-100 RF Unit. The soundtrack will be in mono.

### Connecting the RF unit

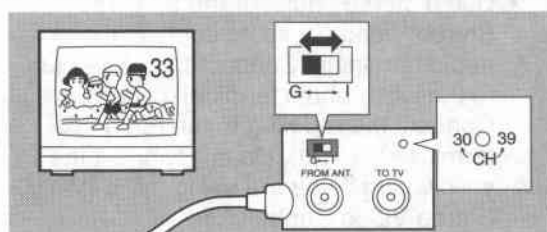


1. Connect the RF unit to the camera.
2. Connect the aerial cable to the FROM ANT. terminal on the RF unit.
3. Connect the "female" DIN-connector on the coaxial cable to the TO TV terminal on the RF unit.
4. Connect the "male" connector to the aerial input on the TV.
5. Set both the TV and the RF unit to the video channel.

### To watch a TV programme

Turn the camera off or disconnect it from the RF unit when you want to watch a broadcast programme. If you leave the camera connected and turned on, the RF unit will automatically select the camera signal instead of the broadcast signal.

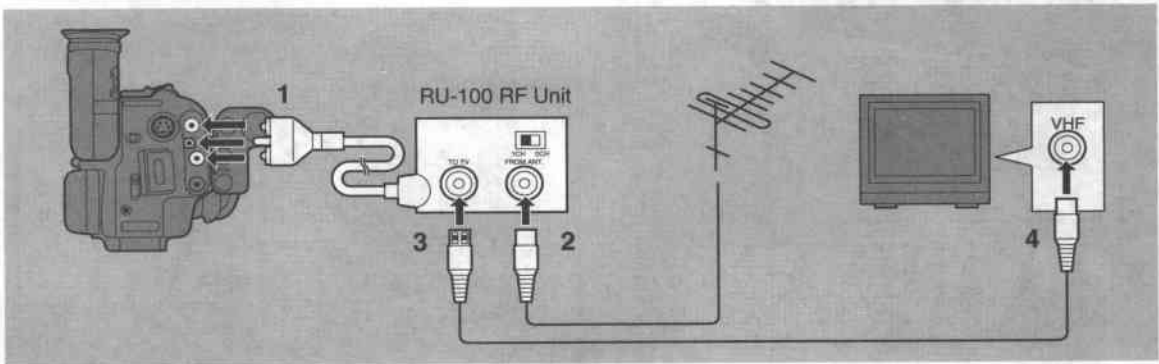
### Selecting the video channel



The video channel is the channel (somewhere between 30 and 39) which is not used by a broadcasting station in your area and can be used for cassette playback.

1. Turn the TV on.
2. Start playback on the camera.
  - See p. 13 for playback.
3. Set the G/I selector on the RF unit.
  - Use a flat screwdriver.
  - In continental Europe, set it to G.
  - In the UK, Hong Kong and South Africa, set it to I.
  - If it is not set properly, you will be able to see the picture, but not hear the sound.
4. Set the TV and the CH selector on the RF unit to the video channel.
  - For example, if the video channel in your area is channel 33, tune the TV to channel 33 and set the selector to 33 (using a flat screwdriver). Adjust it by turning until the picture is clear.
  - The selector is factory-set to channel 32.

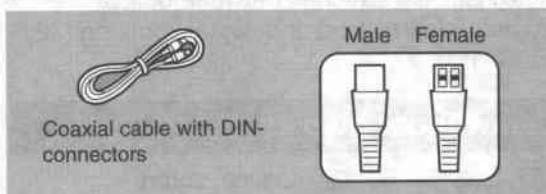
## If your TV does not have audio/video input terminals (Australia):



If your TV is already hooked up to a VCR, you can connect the camera to the VCR instead of the TV. Follow the instructions on p. 15.

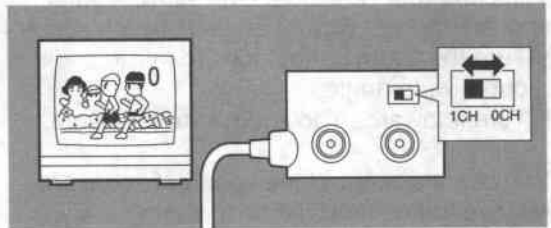
To connect the camera directly to a TV which does not have audio/video terminals, you will need to use the optional RU-100 RF Unit. The soundtrack will be in mono.

### Connecting the RF unit



1. Connect the RF unit to the camera.
2. Connect the aerial cable to the FROM ANT. terminal on the RF unit.
3. Connect the "female" DIN-connector on the coaxial cable to the TO TV terminal on the RF unit.
4. Connect the "male" connector to the aerial input on the TV.
5. Set both the TV and the RF unit to the video channel.

### Selecting the video channel



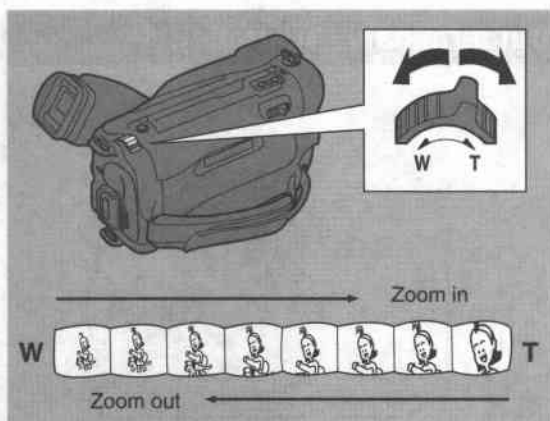
The video channel is the channel (either 0 or 1) which is not used by a broadcasting station in your area and can be used for cassette playback.

1. Turn the TV on.
2. Start playback on the camera.
  - See p. 13 for playback.
3. Set the TV and the selector on the RF unit to the video channel.
  - For example, if the video channel in your area is channel 0, tune the TV to channel 0 and set the selector to 0CH (using a flat screwdriver).

### To watch a TV programme

Turn the camera off or disconnect it from the RF unit when you want to watch a broadcast programme. If you leave the camera connected and turned on, the RF unit will automatically select the camera signal instead of the broadcast signal.

# Zooming



## 12× optical zoom

The camera's 12× zoom lens allows you to choose the best picture angle for each scene:

- Turn the zoom control towards W to zoom out to wide-angle.
- Turn it towards T to zoom in to telephoto.

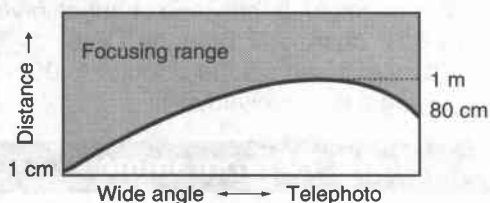
You can also control the speed of zooming:

- Move the control slightly to zoom slowly.
- Turn it further to zoom more quickly. (The further you turn the zoom control, the faster the zoom speed.)

The T and W buttons on the wireless controller adjust the picture angle, but not the zoom speed:

- Press W to zoom out to wide-angle.
- Press T to zoom in to telephoto.

## Minimum focusing distance

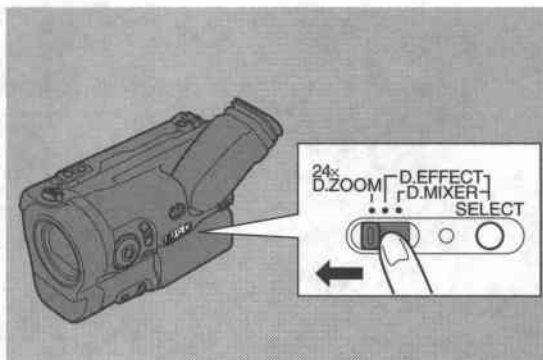


When you are shooting at the widest angle, you can bring the camera as close as 1 cm (3/8 inch) and the subject should still be clearly focused.

However, at 12× magnification (and from 12× to 24× when using the digital zoom), the subject will be out of focus if it is any closer than 80 cm (2 feet 8 inches).

This change in the minimum focusing distance is shown in the diagram.

## 24× digital zoom

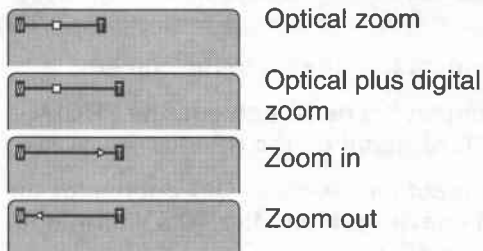


Slide the digital functions switch to the 24× D. ZOOM position to double the camera's zooming range.

The zoom control continues to work as usual, but if you keep zooming beyond 12× magnification (the limit of the optical zoom), the camera will begin to enlarge the image electronically.

You can freely zoom in and out between 1× and 24× magnification — the camera automatically switches between optical zooming (up to 12×) and digital zooming (12 to 24×).

## Viewfinder displays

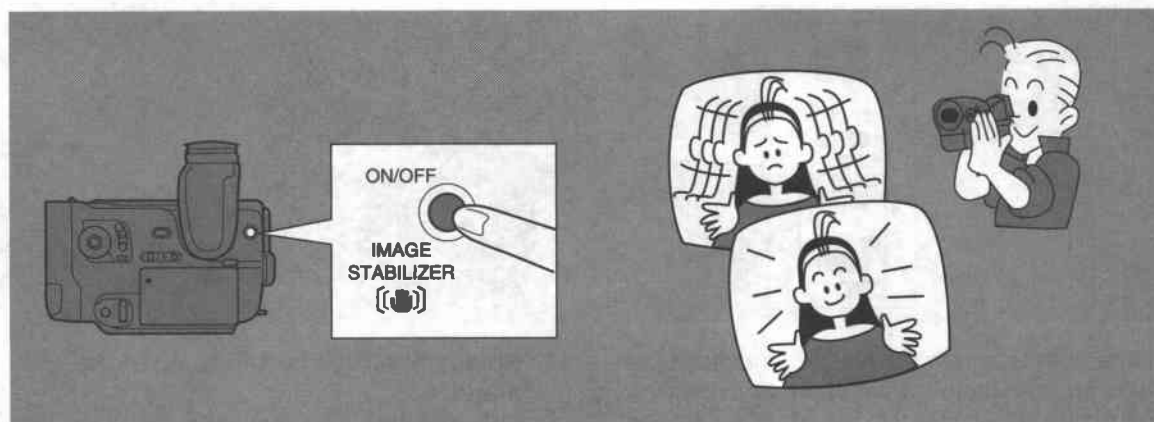


The displays appear in the viewfinder for a few seconds after using the zoom or moving the digital functions switch.

### Notes:


- Overuse of the zoom may make recordings seem too busy. It is generally better to use it sparingly, or in order to reframe between shots (see p. 42).
- Even slight hand movements will be noticeable during telephoto recording. Use the Optical Image Stabilizer or a tripod for better results.
- Image resolution is slightly lower when the magnification is greater than 12×.

# Optical Image Stabilizer



The Optical Image Stabilizer allows you to obtain professional-looking recordings in virtually any situation. It can stabilise all kinds of unwanted camera movement, from the slow, unsteady shaking caused by hand-held telephoto shooting, to the fast vibrations of a moving car.

Before you start recording, push the **IMAGE STABILIZER ON/OFF** button to turn the image stabilizer on or off.

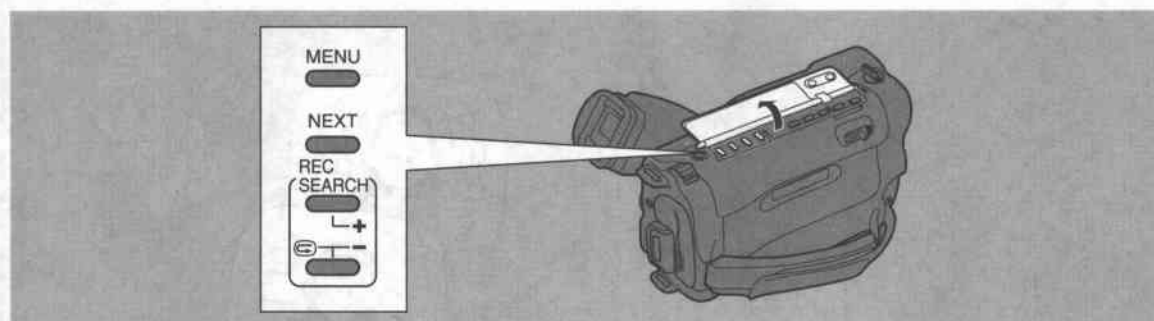
The  mark appears in the viewfinder when the stabilizer is on.

## Notes:

- The image stabilizer is designed to deal with a normal degree of camera shake — it cannot compensate for large movements of the camera.
- Keep the image stabilizer turned off when the camera is mounted on a tripod.
- The image stabilizer is not as effective as usual when the optional tele-converter is attached.
- The image stabilizer always remains on when you are using the Easy Recording program (see p. 27).



# Using the Menus



Some of the camera's advanced functions are selected from menus which appear in the viewfinder. There are two menus. One can be opened when the OPERATE switch is set to CAMERA. The other can be opened when the OPERATE switch is set to PLAY.

This section gives a basic explanation of how to open and close these menus, and how to select the various functions. Turn to the appropriate pages for an explanation of the functions themselves.

## CAMERA menu

<MENU>	
▶TAPE SPEED**SP	Tape speed .....p. 25
WIND SCREEN**OFF	Wind screen .....p. 37
TALLY*****ON	Tally lamp .....p. 25
SENSOR*****ON	Remote sensor .....p. 21
TIME ZONE***2 PAR	World clock .....p. 23
SUMMER*****OFF	Summer time .....p. 23
W. BALANCE***AUTO	White balance .....p. 31
SHUTTER*****AUTO	Shutter speed .....p. 32
AF FRAME*****ON	Eye Control frame ....p. 40
EYE SWITCH**FADE	Eye-controlled switches .....p. 41

## PLAY menu

<MENU>	
▶BILINGUAL***OFF	Bilingual soundtrack .....p. 37
EDIT*****OFF	Edit mode .....p. 38
SENSOR*****ON	Remote sensor .....p. 21

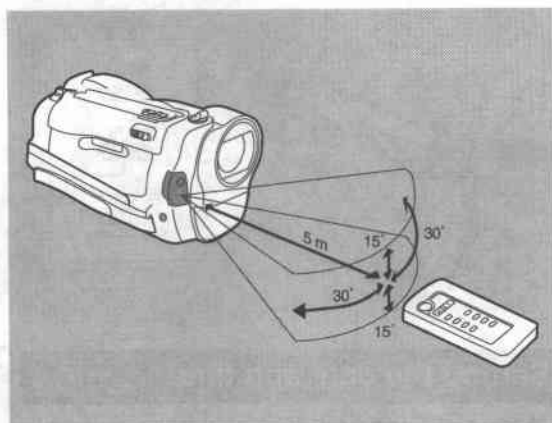
1. Press the **MENU** button to open the menu.
  - Remember, the menu you can open depends on whether the OPERATE switch is set to CAMERA or to PLAY.
2. Press the **NEXT** button to point the arrow at the function you want.
  - Each time you press the button, the arrow moves on to the next item on the menu.
3. Press the **+** or **-** button to turn the function on or off, or change its setting.
  - Refer to the appropriate section for an explanation of each function.
4. Press the **MENU** button to close the menu again.

### Notes:

- As long as you have installed the backup battery (p. 10), the camera will remember your chosen menu settings even when the main power source is disconnected.
- To return all the functions on one menu to their original settings, open the menu then press and hold the C. RESET button.
- You can display the menus on a connected TV screen using the wireless controller's ON SCREEN button (see p. 50).



# Wireless Controller

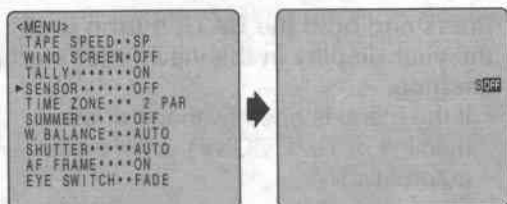


The wireless controller can operate the camera from a distance of up to 5 metres (16 feet). Point it at the camera's remote sensor while you press the buttons. The tally lamp lights up to let you know that the camera is in range and responding to your commands.

There are two functions which can only be operated using the wireless controller:

- Tape return (p. 13)
- On-screen viewfinder displays (p. 50)

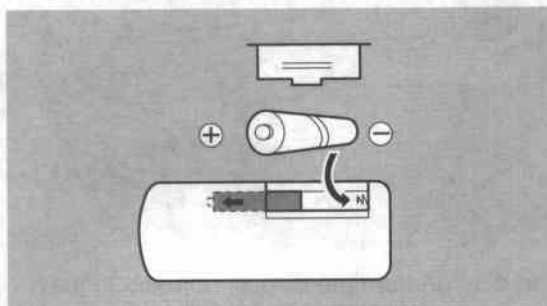
## Turning off the remote sensor



The remote sensor can be turned off to prevent interference from other Canon wireless controllers being used nearby.

1. Open either the **CAMERA** or the **PLAY** menu, and point the arrow at **SENSOR**.
2. Select the **OFF** setting.
3. Close the menu.
  - S **OFF** appears in the viewfinder.

## Inserting batteries

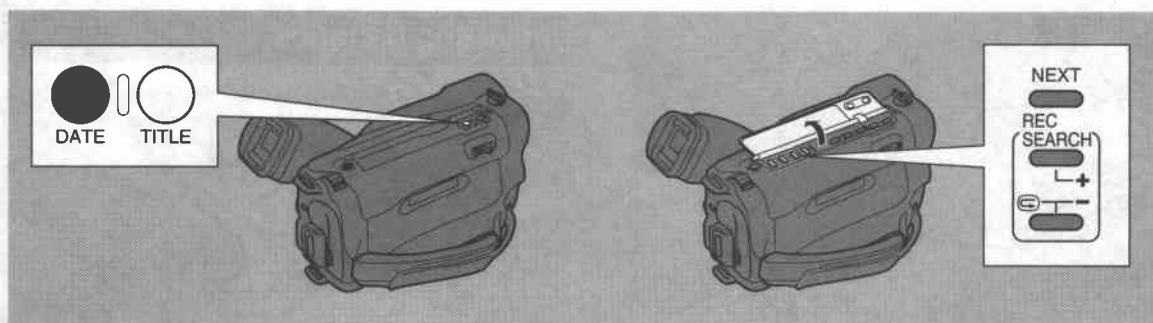


Insert two AAA batteries, following the  $\oplus$  and  $\ominus$  markings. Be careful not to reverse the polarity of the batteries.

### Notes:

- Sunlight or fluorescent light falling on the sensor may shorten the controller's operating distance by interfering with its infrared signals.
- The camera may have difficulty picking up the remote control signals at extremely close range.
- Do not leave the controller exposed to direct sunlight, or in hot or humid places.
- When changing exhausted batteries, replace them all at once.

# Date and Time



The date and/or time display appears in the viewfinder when you press the DATE button. If you start recording now, it will be superimposed on the scene. Press the button again to cancel the display.

If you have not set the date and time, —:—:— appears in the viewfinder when you press the DATE button. This will not be recorded.



The date and time display can also be operated by Eye Control (see p. 40).

## Choosing the display style

You can choose from three different date/time displays.

### 1. Set the OPERATE switch to CAMERA.

### 2. Press the DATE button.

- The currently selected display (if any) appears in the viewfinder.

### 3. Press the NEXT button to select the display style.

- Each time you press the button the display changes as follows:



### 4. Press the DATE button again to cancel the display.

- The camera remembers which type of display you have selected.

## Setting the date and time

Set the date and time display when you first start using your camera. As long as you have installed the backup battery (p. 10), the camera's internal clock will continue to work even when the main power source is removed.

### 1. Set the OPERATE switch to CAMERA.

- If you are going to take the camera overseas, you will want to use its world clock. In this case, select your home time zone from the menu (p. 23) now.
- Also, if you are on summer time now, you should put the camera on summer time (p. 23). You can do this at the same time as selecting your home time zone.

### 2. Press and hold the DATE button until the year display in the viewfinder starts flashing.

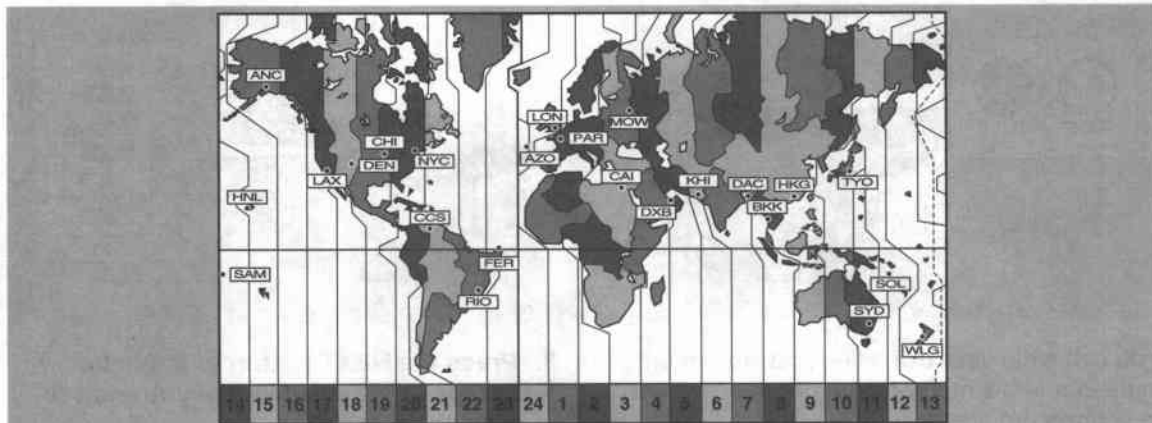
- If the menu is open (with the arrow pointing at TIME ZONE), it will close automatically.

### 3. Press the + and – buttons to scan the year display, then press the NEXT button to set it.

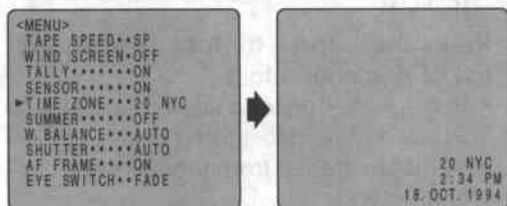
- Press + or – once to scan a year at a time. Press and hold to scan quickly.
- As soon as the year display is set, the month display starts flashing instead.

### 4. Scan and set the months, days and hours in the same way.

### 5. Scan the minutes and then press the DATE button to set the display and start the clock.



## Changing time zones



When you travel to another time zone, there is no need to reset the date and time. Use the camera's world clock to display the correct time for your destination.

When you set the date and time (p. 22), select your home time zone. Afterwards, you can select the time zone you are visiting.

First, identify the time zone:

For somewhere in the same time zone as:	Set the menu to:		
London	1 LON	Solomon	12 SOL
Paris	2 PAR	Wellington	13 WLG
Calro	3 CAI	Samoa	14 SAM
Moscow	4 MOW	Honolulu	15 HNL
Dubai	5 DXB	Anchorage	16 ANC
Karachi	6 KHI	Los Angeles	17 LAX
Dacca	7 DAC	Denver	18 DEN
Bangkok	8 BKK	Chicago	19 CHI
Hong Kong	9 HKG	New York	20 NYC
Tokyo	10 TYO	Caracas	21 CCS
Sydney	11 SYD	Rio de Janeiro	22 RIO
		Fernando de	23 FER
		Noronha	
		Azores	24 AZO

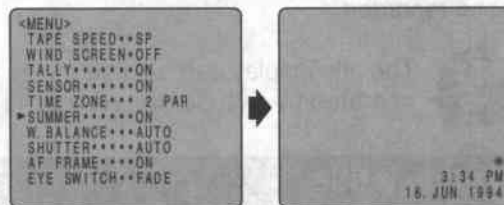
1. Open the CAMERA menu and point the arrow at TIME ZONE.

2. Select the time zone.

- If you set the date and time without closing the menu, this will become your home time zone.

- If you close the menu, the camera takes this as the time zone you are visiting. It will be shown in the viewfinder (but not recorded) whenever the date/time is displayed.

## Changing to summer time



The date and time display can easily be set to summer time.

Remember, if you are on summer time now, you should follow the steps below when you set the date and time.

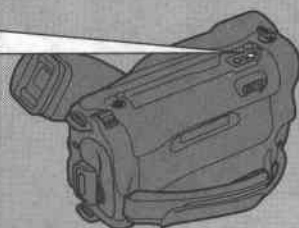
1. Open the CAMERA menu and point the arrow at SUMMER.

2. Select the ON setting.

- You can now set the date and time by pointing the arrow at TIME ZONE and pressing and holding the DATE button (see p. 22).
- If you have already set the date and time, close the menu.
- The \* mark will be shown in the viewfinder (but not recorded) whenever the date/time is displayed.

### Notes:

- If you need to correct the date and time, make sure the world clock is set to your home time zone.
- The date can be set to any year between 1994 and 2014.



You can write your own titles and store them in the camera's memory in order to add them to your recordings.

The title stored in the memory is displayed in the viewfinder when you press the TITLE button. If you start recording now, it will be superimposed on the scene.

Press the button again to cancel the display. If it does not appear in the viewfinder, it will not be recorded.



The title display can also be operated by Eye Control (see p. 41).

## Writing a title



These lines appear in the viewfinder when you are writing a title.

Enter your title in the camera's memory before you start recording. The title can be one or two lines of up to 16 characters each.

1. **Set the OPERATE switch to CAMERA.**
2. **Press and hold the TITLE button until the title lines appear in the viewfinder.**
  - If you have already entered a title in the memory, it will be displayed in the viewfinder.
  - The first dot (or character) flashes to show where the cursor (the insertion point) is located.

3. **Press the NEXT button to move the cursor to the point where you want to start the title.**

- Press once to move the cursor one space right. Press and hold to move it quickly.

4. **Press the + and – buttons to scan the list of title characters.**

- Press + or – once to scan one at a time. Press and hold to scan quickly.
- You can choose from the following characters:



- If you choose the flashing dot ✱, nothing will be recorded at this position.
- You can erase all the characters at and to the right of the cursor by pressing the C. RESET button.

5. **When the character you want is displayed, press the NEXT button again to move the cursor to the point where you want to write the next character.**

6. **Repeat steps 4 and 5 until your title is complete, then press the TITLE button to enter the title in the memory.**

### Note:

- If it takes you more than about five minutes to write a title, the camera may turn itself off automatically before you have finished. This can be avoided by removing the cassette before you begin.

# Tape Speed and Tally Lamp

## Selecting the tape speed

```
<MENU>
▶TAPE SPEED**LP
WIND SCREEN**OFF
TALLY*****ON
SENSOR*****ON
TIME ZONE*** 2 PAR
SUMMER*****OFF
W. BALANCE***AUTO
SHUTTER****AUTO
AF FRAME***ON
EYE SWITCH**FADE
```



LP

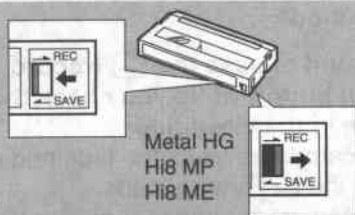
You have a choice of two recording speeds:

- Standard Play (SP) for maximum quality
- Long Play (LP) for double recording time

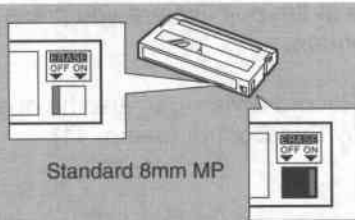
1. Open the **CAMERA** menu and point the arrow at **TAPE SPEED**.
2. Select the tape speed you want.
3. Close the menu.
  - **SP** or **LP** is displayed in the viewfinder.

The camera automatically selects the appropriate speed for playback.


## Protecting tapes from accidental erasure



Metal HG  
Hi8 MP  
Hi8 ME



Standard 8mm MP

To protect your recordings from accidental erasure, slide the red switch on the cassette to the **SAVE** or **ERASE OFF** position (covering the hole). When this cassette is loaded, the  mark will flash in the viewfinder if you turn the **OPERATE** switch to **CAMERA**.

If you want to record on the cassette again, push the red switch on the cassette back to the **REC** or **ERASE ON** position.

## Turning off the tally lamp



```
<MENU>
TAPE SPEED**SP
WIND SCREEN**OFF
▶TALLY*****OFF
SENSOR*****ON
TIME ZONE*** 2 PAR
SUMMER*****OFF
W. BALANCE***AUTO
SHUTTER****AUTO
AF FRAME***ON
EYE SWITCH**FADE
```



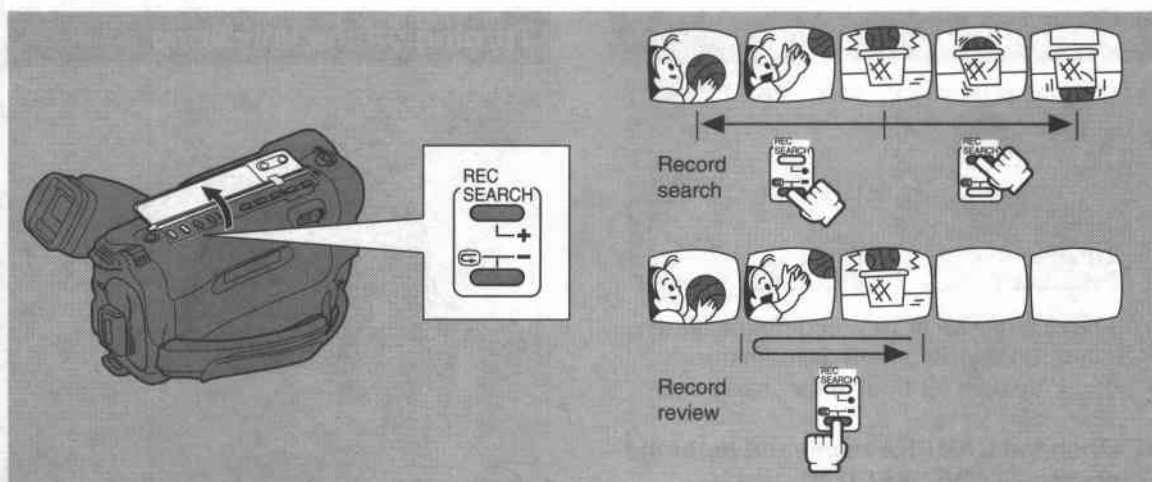
The tally lamp lets you know that the camera is recording. However, its flashing may be reflected into the lens during close-up recording, or when recording through glass.

1. Open the **CAMERA** menu and point the arrow at **TALLY**.
2. Select the **OFF** setting.
3. Close the menu.

### Note:

- The tally lamp will still light up when the camera receives a signal from the wireless controller.

# Record Search and Record Review





## Record search

When the camera is in record pause mode, you can use record search to play the tape forwards or backwards to find the point where you want to start or restart recording. This is useful when you want to add a new scene to a previously used cassette. By using record search, you can ensure a smooth, noise-free join between the new scene and the old one.

1. **Make sure the camera is in record pause mode.**
2. **Press and hold the REC SEARCH + or – button while you check the picture in the viewfinder.**
  - The + button plays the recording forwards and the – button plays it backwards.
3. **Release the button when you find the point where you want to start recording.**
  - The record search picture pauses briefly and then the camera returns to record pause mode.

## Record review

When the camera is in record pause mode, you can use record review to play back the last few seconds of your recording and then return automatically to record pause mode. You can quickly make sure that a scene has recorded properly and then go on to shoot the next scene, without producing any noise in the picture.

1. **Make sure the camera is in record pause mode.**
2. **Press and release the  (record review) button while you check the picture in the viewfinder.**
  - The camera rewinds the tape and plays back the last few seconds.
  - The camera returns to record pause mode at the point where you pressed the  button.



Record review can also be operated by Eye Control (see p. 41).



### Note:

- Noise or skew (picture distortion) may appear on the screen during record search and record review.



# Choosing a Recording Program

The camera provides you with a choice of six recording programs. They use different combinations of camera settings in order to adjust the exposure and other functions to match the recording situation.


- For simple point-and-shoot operation, select the Easy Recording program. Turn the program selector dial to the  position.
- For normal shooting conditions, set the dial to  (Auto).
- For difficult recording conditions, the camera has four more specialised AE (auto exposure) programs.

Except for the Easy Recording program, all these programs allow you to use the camera's manual functions. However, the high-speed shutter (p. 32) can only be used with the Auto program.

Rotate the selector dial to choose the appropriate program before you start recording. Press and hold the lock button when you want to move the dial from the Easy Recording or Auto positions.



## Easy Recording

The simplest way to use the camera is with the program selector set to the  position. The camera will take care of focus, exposure and other adjustments, leaving you free to point and shoot.


If you select this Easy Recording program, you cannot use:

- Exposure lock or compensation
- White balance set
- Digital effects
- Digital mixer

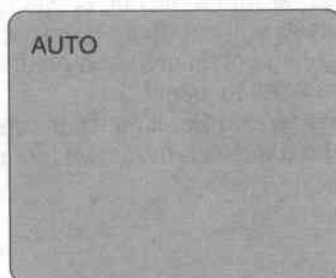
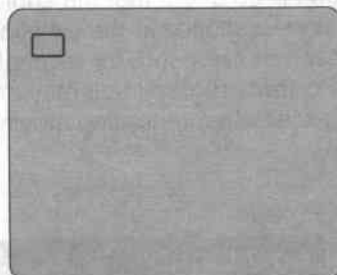
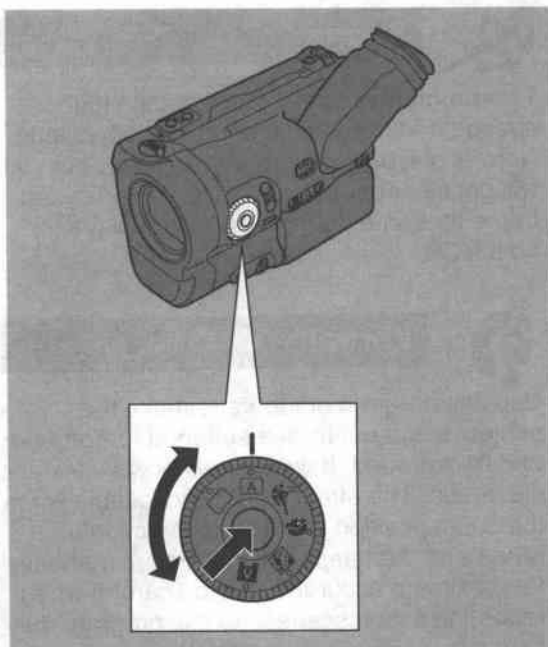
Also, the image stabilizer and autofocus cannot be turned off.



## Auto

In normal recording conditions, set the program selector to  (Auto). This is the same as the Easy Recording program, except that you now have the option of using any of the camera's manual functions — you can adjust focus and exposure, set the white balance, and so on.

- Choose this Auto program if you want to use the high-speed shutter.







## Sports

This program is useful for recording high-speed sports scenes in brightly lit conditions. Normal playback will be slightly jerky, but you will get clear images which can be analysed frame by frame during slow or still playback on a VCR.



## Portrait

Use this program outdoors to make the subject stand out from a softened foreground and background. It works well for still-lives and close-ups. The effect is most noticeable when the zoom position is between the middle range and the telephoto end. Focus manually for maximum accuracy, and be careful when recording action scenes, as this program may cause fast-moving images to shudder.



## Sand & Snow

Use this program in places where the background is so bright that the subject appears underexposed in the viewfinder — a sunny beach or ski resort, for example. As with the Portrait program, you may notice some shudder when recording moving subjects.



## Low Light

This program allows you to record in dimly lit places. It is generally best used for close-ups of slow or stationary subjects, as moving subjects may leave a trailing afterimage. However, you can take advantage of this to create special effects, by rapid zooming or by panning along with a moving subject. Picture quality will not be as good as in normal lighting conditions, and autofocus may not work as well as usual.

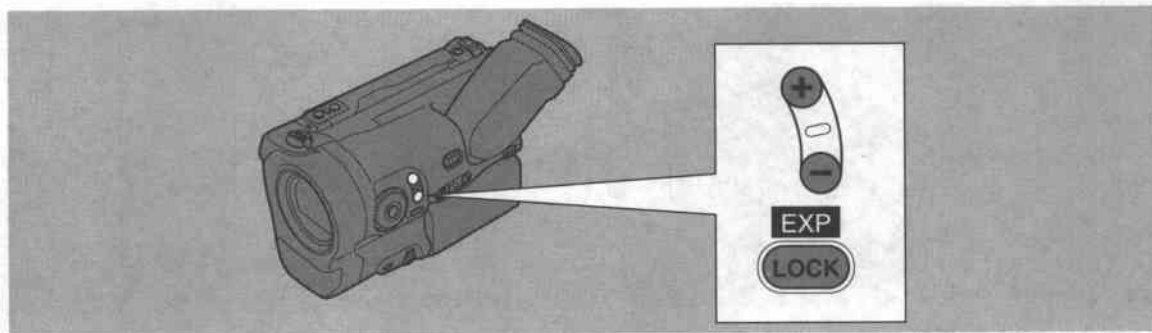
- The Overlap and Scroll functions (p. 35) cannot be used with the Low Light program.



### Notes:

- Avoid changing programs during recording, as the brightness of the image may change suddenly.
- When you are using the specialised exposure programs, some kinds of lighting may cause the image to flicker, or a bright line may appear on the screen.

# Manual Exposure Control



## Exposure lock

When you are recording in situations where the lighting may change suddenly, you can lock the exposure at the current level in order to control the brightness of the image.

Press the EXP LOCK button to lock the exposure. Press it again to return to the automatically set level.

## Viewfinder displays



Exposure locked



Brighter than standard exposure level

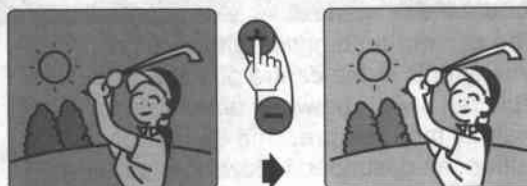


Darker than standard exposure level

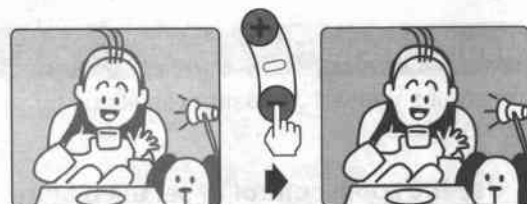
The displays appear in the viewfinder while the exposure is locked. (The zoom displays will no longer appear.)

## Exposure adjustment

When the exposure is locked, you can adjust it manually, making the picture brighter or darker in order to deal with difficult lighting conditions, or to manipulate the mood of the scene.



To make the recorded image brighter, press the EXP + button. This may be necessary if the background is very bright, or if the subject is lit from behind.

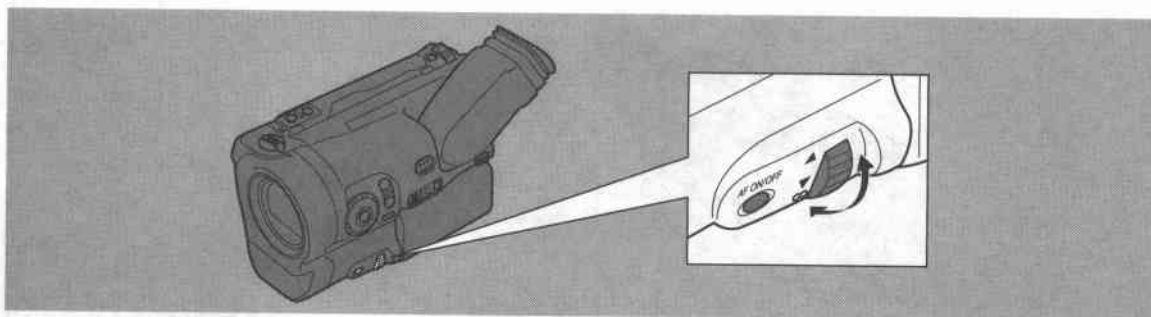


To make the recorded image darker, press the EXP - button. This may be necessary if the background is very dark, or if the subject is spotlighted.

### Notes:

- Exposure lock is cancelled if you change recording programs.
- The standard exposure level depends on which recording program you have selected.
- The exposure cannot be controlled manually when using the Easy Recording program.

# Autofocus and Manual Focus



The camera has three different ways of focusing: autofocus, manual focus and eye-controlled focus.



Eye-controlled focus is explained on p. 40.

## Autofocus

The camera automatically focuses on whatever is in the centre of the viewfinder. You can switch between autofocus and manual focus by pressing the AF ON/OFF button, as described below. You can also adjust the focus without turning autofocus off by turning the focus wheel — autofocus starts again as soon as you release it. When you are using the Easy Recording program, autofocus cannot be turned off.

## Manual focus

Sometimes you will get better results using manual focus.

- 1. Use the zoom control to set the picture angle.**
  - If you use the zoom after manual focusing, the picture may go out of focus.
- 2. Press the AF ON/OFF button to switch from auto to manual focus.**
  - AF OFF appears in the viewfinder.
  - The focus remains locked at the point set by autofocus.
- 3. Use the focus wheel to set the focus.**
  - Turn it downwards (towards  $\infty$ ) to move the focus further away. Turn it upwards to bring the focus nearer.
- 4. Press the AF ON/OFF button again to return to autofocus.**

Manual focus will probably work better than autofocus when shooting:



Subjects not in the centre of the viewfinder



Several subjects in the viewfinder at different distances



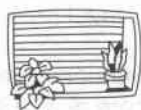
Subjects behind glass



Rapidly moving subjects



Slanted subjects



Subjects with horizontal stripes



Subjects without much contrast (such as a white wall)



Subjects which reflect too much light (such as shiny car exteriors)



Dark subjects

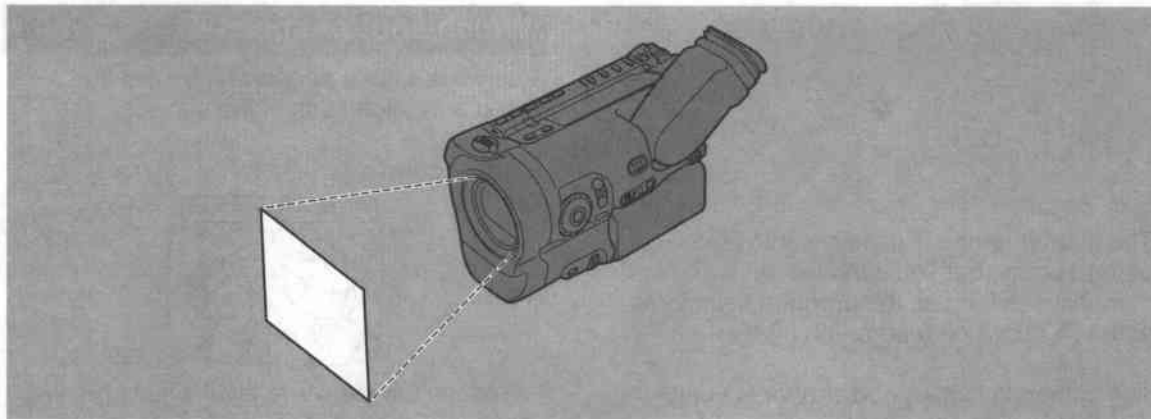


Night scenes

### Note:

- The manual focus setting is cancelled if you select the Easy Recording program.

# White Balance



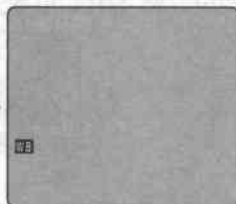
The camera has two white balance systems: auto and set.

## Auto white balance

The 64-zone auto white balance system compensates for a wide range of lighting conditions. Although slight variations are unavoidable, colours will appear natural in virtually every situation.

## White balance set

<MENU>  
TAPE SPEED••SP  
WIND SCREEN•OFF  
TALLY•••••ON  
SENSOR•••••ON  
TIME ZONE•• 2 PAR  
SUMMER•••••OFF  
▶W. BALANCE••SET  
SHUTTER•••••AUTO  
AF FRAME•••ON  
EYE SWITCH•FADE



In some cases, you will get better results by setting the white balance manually.

1. Open the **CAMERA** menu and point the arrow at **W. BALANCE**.
2. Point the camera at a white object (such as a sheet of paper) and zoom in until it fills the viewfinder.
3. Select **SET**.
  - The SET display flashes then remains lit.
4. Close the menu.
  - **WB** is displayed in the viewfinder.

White balance set will probably work better than auto white balance when shooting:



Subjects with one dominant colour, such as sky, sea or forest.



Close-ups



In rapidly changing lighting conditions



In places lit by certain types of fluorescent or mercury vapour lights.

### Notes:

- If the lighting conditions change, reset the white balance by first returning to the AUTO setting, and then reselecting SET.
- White balance cannot be set when using the Easy Recording program. (The display disappears from the menu.)
- Try to record with light from a single source. Correct white balance cannot be obtained for two types of lighting at once.

# High-Speed Shutter

<MENU>  
TAPE SPEED\*\*SP  
WIND SCREEN\*OFF  
TALLY\*\*\*\*\*ON  
SENSOR\*\*\*\*\*ON  
TIME ZONE\*\* 2 PAR  
SUMMER\*\*\*\*\*OFF  
W. BALANCE\*\*\*AUTO  
SHUTTER\*\*\*\*\*1/1000  
AF FRAME\*\*\*\*\*ON  
EYE SWITCH\*\*FADE



1000

The shutter speed is usually controlled automatically, but you can also set it manually, as long as the program selector is at the **A** position (see p. 27).

The camera's high-speed shutter is useful when recording very fast or very bright subjects. A faster than usual shutter speed can also be used creatively in order to narrow the depth of field and throw the background out of focus.

**1. Open the CAMERA menu and point the arrow at SHUTTER.**

**2. Select the shutter speed you want.**

- The + button selects a faster shutter speed. The – button selects a slower one:

AUTO	←	1/50	←	1/120	←	1/250
↑						↑
1/10000						
↑						↑
1/4000	←	1/2000	←	1/1000	←	1/500

**3. Close the menu.**

- The selected shutter speed is displayed in the viewfinder. There is no display when the shutter is set to AUTO.

## Which shutter speed?

Select the shutter speed which suits the speed and brightness of the subject:

**1/120 second**



To reduce the exposure level when shooting very bright scenes, or to give more stable pictures when shooting indoor sports.

**1/250 to 1/1000 second**



To record outdoor action on a cloudy day, or for a more stable picture when shooting from a moving car.

**1/2000 to 1/10000 second**



To record outdoor sports on a clear day so that you can freeze the action clearly. Normal playback will be slightly jumpy, but on a VCR with a noise-free still playback function, you will get clear images which can be analysed frame by frame.

## Notes:

- High shutter speeds need more light than normal speeds.
- The shutter setting is cancelled if you move the program selector from the **A** position.

# Digital Effects

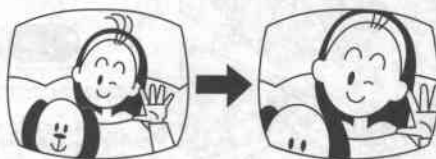
The camera can manipulate the recorded image in a variety of ways.  
The soundtrack will not be affected.

## Close-up

The Close-up effect produces an extra 2x magnification — it digitally enlarges the central portion of the image so that it fills the screen.



See p. 40 for eye-controlled Close-up.



## Strobe

This effect converts on-screen action to a series of still images, giving an effect similar to slow motion.



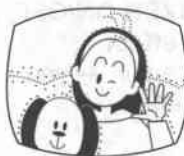
## Freeze

This freezes the image in the viewfinder.



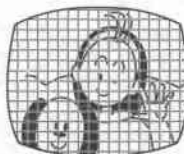
## Art

This adds a paint-like effect, called solarisation, to the image.



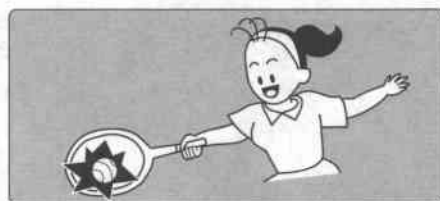
## Mosaic

The Mosaic effect blurs the image by enlarging some of the pixels (the dots that make up the video image) so that the picture is broken up into squares.

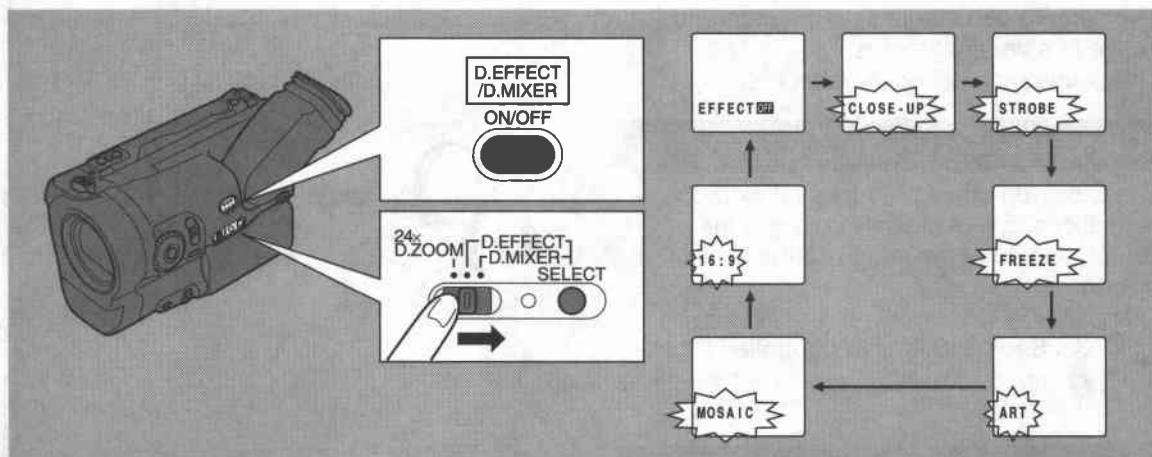


## 16:9

This produces images in the 16:9 format for playback on a widescreen TV.







### Using digital effects

1. Slide the digital functions switch to the **D. EFFECT** position.
2. Press the **SELECT** button to choose the effect you want.
  - Each time you press the button, the flashing viewfinder display changes as shown.
3. Press the **D. EFFECT/D. MIXER ON/OFF** button to **activate the effect**.
  - The viewfinder display stops flashing and appears steadily.
4. Press the **D. EFFECT/D. MIXER ON/OFF** button again to **cancel the effect**.
  - The display starts flashing again — you can now select a different effect.

#### Notes:

- Digital effects cannot be used when the Easy Recording program is selected.
- Image quality is slightly lower when using digital effects.
- For 16:9 playback, set your TV to widescreen mode manually.
- Pictures recorded in the 16:9 format will be compressed sideways if played back on a normal TV.



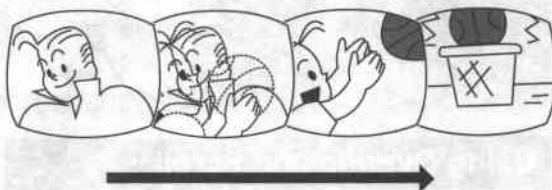
# Digital Mixing

You can use the camera's digital mixing functions to vary the transitions between scenes.

Sound recording is not affected by Overlap or Scroll. When using the other mixing functions, the sound fades in and out together with the image.

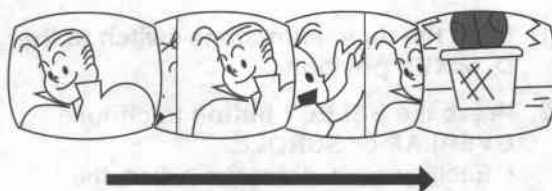
## Overlap

This gives a dissolve effect from one scene to the next. Activate this function before recording the first scene. When you pause and restart recording, the end of the first scene is displayed in the viewfinder as a still image and gradually dissolves into the second scene.



## Scroll

Like the Overlap function, this must be activated while recording the first of the two scenes. When you pause and restart recording, the last frame of the first scene is displayed as a still image. It then scrolls off the screen, from left to right and is replaced by the second scene.



## Wipe

When you start recording, the picture begins as a thin vertical line in the centre of the screen which gradually expands sideways until it fills the whole of the screen. When you end a scene, the image is wiped from the screen from either side. The picture becomes gradually narrower, until it disappears altogether, leaving a black screen.



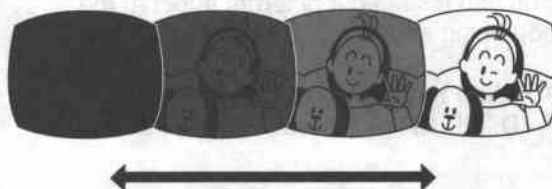
## Window

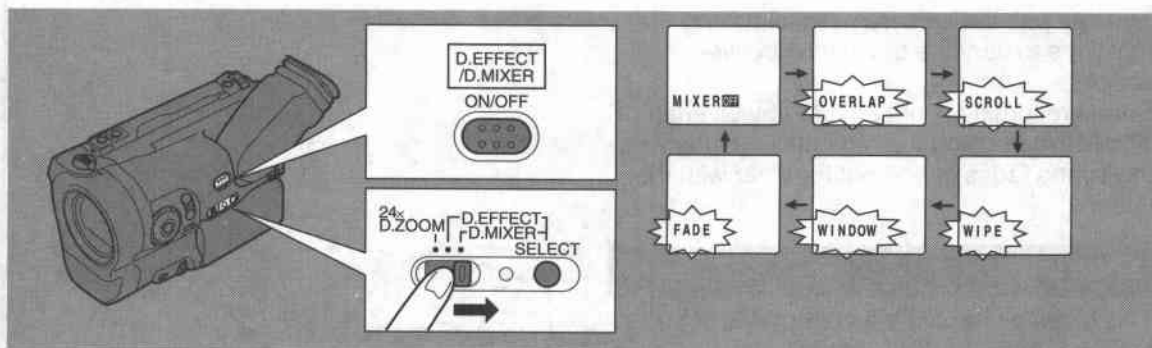
When you start recording, the image begins as a square dot in the centre of the screen which gradually expands to normal size. When you end a scene, the image becomes smaller and smaller until it disappears altogether, leaving a black screen.



## Fade

When you start recording, the scene gradually fades in from a black screen. When you stop recording, it gradually fades out.





## Using Overlap and Scroll

Activate Overlap or Scroll while you are recording. You will see the result when you pause and then restart recording.

1. Slide the digital functions switch to the **D. MIXER** position.
2. Press the **SELECT** button to choose **OVERLAP** or **SCROLL**.
  - Each time you press the button, the flashing viewfinder display changes as shown.
3. Start recording.
4. Press the **D. EFFECT/D. MIXER ON/OFF** button to activate the function.
  - The viewfinder display stops flashing and appears steadily.
5. Pause, and then restart recording.
  - The end of the first scene reappears in the viewfinder, and is replaced by the second with an Overlap or Scroll effect.
  - The display starts flashing again — you can now select a different mixing function.

2. Press the **SELECT** button to choose **WIPE**, **WINDOW** or **FADE**.

- Each time you press the button, the flashing viewfinder display changes as shown.

3. Press the **D. EFFECT/D. MIXER ON/OFF** button to activate the function.

- The viewfinder display stops flashing and appears steadily.

4. Start or stop recording.

- The image gradually appears or disappears, with a Wipe, Window or Fade effect.
- The REC display flashes while the image is disappearing.
- The digital mixer display starts flashing again — you can now select a different mixing function.



See p. 41 for eye-controlled fade.

## Using Wipe, Window and Fade

When you activate one of these functions, it operates only once. It either opens the next scene or closes the scene being recorded. If you want to use a function at both the beginning and end of a scene, activate it twice.

You can also use a different effect at the beginning and end of a scene.

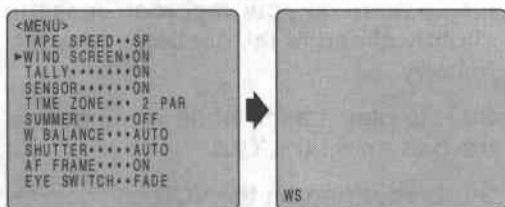
1. Slide the digital functions switch to the **D. MIXER** position.

### Notes:

- Digital mixing is not possible when the Easy Recording program is selected.
- Overlap and Scroll cannot be used with the Low Light program.
- You can see a preview of any of these functions (without actually recording) by removing the cassette before you begin.

# Audio Recording and Playback

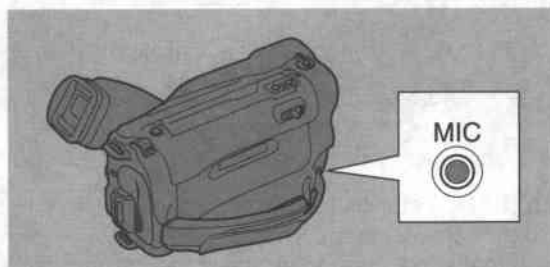
## Wind screen



The camera has a built-in wind screen to prevent wind noise from interfering with the soundtrack. Turn it on when recording in windy places, such as close to buildings, or at the seaside.

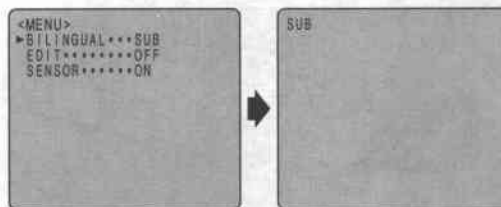
1. Open the **CAMERA** menu and point the arrow at **WIND SCREEN**.
2. Select the **ON** setting.
3. Close the menu.
  - WS is displayed in the viewfinder.

## Using an external microphone



For greater creative control over audio recording, you can connect an external microphone to the camera's MIC terminal. The SA-1 Adapter Bracket can be used to attach a microphone (such as the MM-200 Stereo Mixing Microphone) to the camera. See p. 44 for more information on these optional accessories.

## Bilingual playback



In some countries, bilingual video cassettes are available. These cassettes have two separate soundtracks, usually recorded in two different languages. The camera allows you to play back both of these soundtracks, either separately or together.

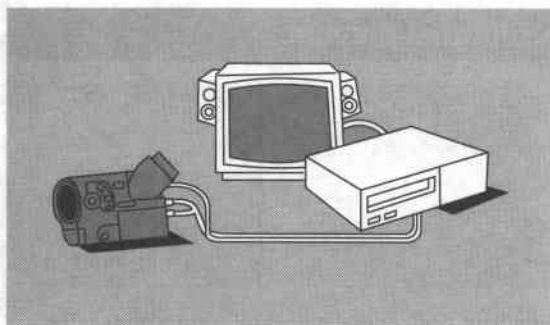
You do not need to use this function for normal stereo or mono playback.

1. Open the **PLAY** menu and point the arrow at **BILINGUAL**.
2. Select the setting you want.
  - Each time you press the + or – button, the display changes as follows:  
  
The **MAIN** setting plays back the main recording. The **SUB** setting plays back the sub-recording, and the **MAIN + SUB** setting plays back both together (the main recording on the left channel, and the sub-recording on the right channel).
3. Close the menu.
  - The bilingual soundtrack setting is displayed in the viewfinder.

### Notes:

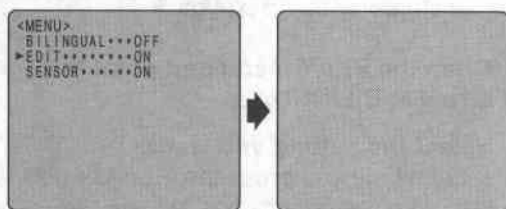
- The wind screen does not operate with an external microphone.
- The bilingual playback setting is cancelled if you move the **OPERATE** switch from the **PLAY** position.

# Editing



By connecting the camera to a VCR, you can edit your recordings in order to remove unwanted scenes — or combine different shots to create your own video production.

## Preparations

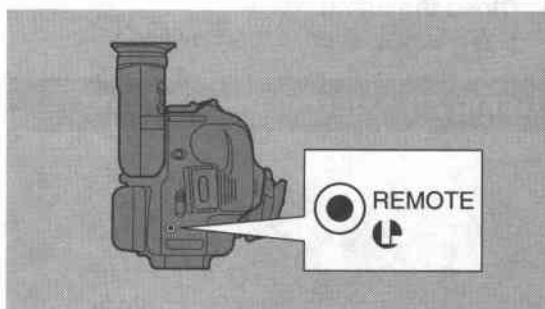


1. **Connect the camera to the VCR.**
  - See "Playback Connection" on p. 14.
2. **Turn the TV on.**
  - Be sure to set it to the video channel, or set the TV/VIDEO selector to VIDEO.
3. **Turn on the VCR and load a blank cassette.**
  - See your VCR instruction manual for details.
4. **Set the VCR's input selector to LINE, and put it in record pause mode.**
5. **Set the camera's OPERATE switch to PLAY, and load your recorded cassette.**
6. **Open the PLAY menu and point the arrow at EDIT.**
7. **Select the ON setting.**
8. **Close the menu.**

## Basic editing

1. **Find a point on your recorded cassette slightly ahead of the section you want to copy.**
2. **Start to play it back while you monitor the picture on the TV.**
3. **Start recording on the VCR as soon as the section you want to copy appears on the screen.**
4. **Pause the VCR at the end of the section you want to copy, then stop playback on the camera.**
5. **Repeat steps 1 to 4 until your edited recording is complete.**

## REMOTE terminal

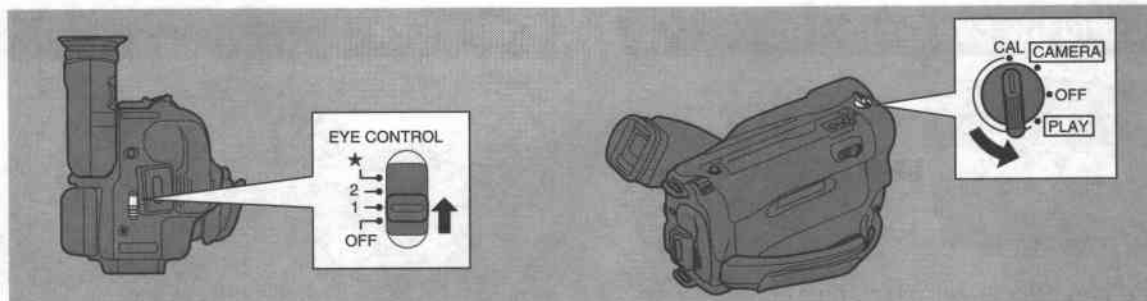


Ⓛ (LANC) stands for Local Application Control Bus System. The Ⓛ REMOTE terminal allows you to connect the camera to equipment such as the VE-100 Video Editor (p. 45). Some buttons on other editing equipment may operate differently from those on the camera.

### Notes:

- Select the edit mode when the camera is being used as a playback deck during editing. Keep it turned off at all other times. (It is cancelled automatically when you move the OPERATE switch from the PLAY position.)
- The quality of the edited tape will be slightly lower than that of the original.

# Before You Use Eye Control



Before using Eye Control, you must set the EYE CONTROL switch.

The first time you use Eye Control, you must also calibrate the camera.

## Setting the EYE CONTROL switch

Before using Eye Control, set the EYE CONTROL switch to 1 or 2. This is now your own Eye Control number. When you calibrate the camera, and every time you use Eye Control, set the EYE CONTROL switch to the same position. Nobody else should use the camera with the switch at your setting.

- For people who will not use the camera very often, set the EYE CONTROL switch to ★, the guest position. Each time the camera is calibrated at the ★ setting, it cancels the previous ★ calibration automatically.

## Calibration

As different people have different eye characteristics, the camera has to learn about your eyes before it can interpret their movements accurately. The process of teaching the camera about your eyes is called calibration. You can calibrate the camera as often as you like. The more often you do so, the more accurate it will become.

The camera itself will guide you through the calibration procedure, but you should also read the instructions below for more detailed information.

### 1. Set the OPERATE switch to CAL.

- The calibration display appears in the viewfinder.

### 2. Set the EYE CONTROL switch to 1 (or 2).

- See "Setting the EYE CONTROL switch," above.

### 3. Put your eye to the viewfinder.

- Do not move your eye away from the viewfinder during calibration.

### 4. Press the start/stop button to start calibration.

- If you press the C. RESET button first, all the previous calibration information for position 1 (or 2) will be erased.
- This step is not necessary if you use the ★ setting.

### 5. Look at the yellow dot, and press the start/stop button again.

- Keep looking until it stops flashing.
- If TRY AGAIN flashes in the viewfinder, you will have to press the start/stop button and then start again.

### 6. Look at the next yellow dot and press the start/stop button one more time.

- Keep looking until it stops flashing.
- If TRY AGAIN flashes in the viewfinder, you will have to press the start/stop button and then start again.

### 7. Set the OPERATE switch to CAMERA.

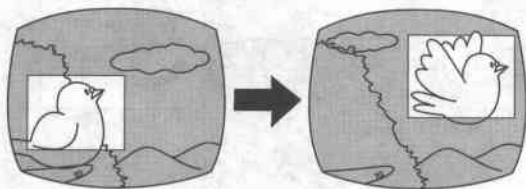
- You are now ready to use Eye Control.

### Note:

- If you sometimes wear glasses, you might want to use both positions 1 and 2 yourself. Use one position when you are wearing glasses, and the other when you are not wearing them.

# Eye-Controlled Focus

## Using the Eye Control frame



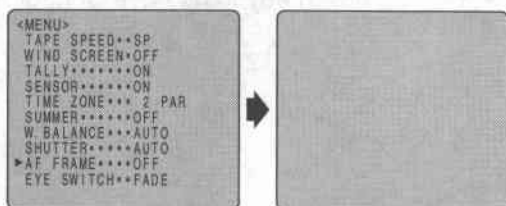
The camera can tell which part of the viewfinder screen you are looking at. This means it can automatically adjust the focus to suit the important part of the scene.

The Eye Control frame follows your eye around the viewfinder, and the camera adjusts the focus to suit whatever is inside the frame. It also measures the brightness of the frame area in order to calculate the exposure more precisely.

Be sure to calibrate the camera before using Eye Control for the first time (see p. 39).

1. **Set the EYE CONTROL switch.**
  - See p. 39.
  - The Eye Control frame appears in the viewfinder.
2. **Look at the subject in the viewfinder.**
  - The frame follows your eye and positions itself over the subject. The camera adjusts the focus to suit the area inside the frame.

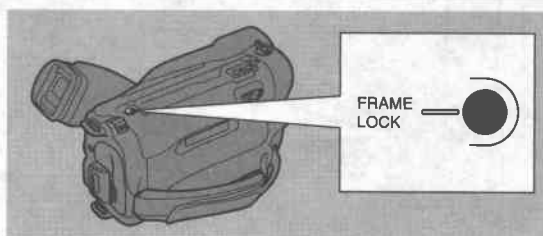
## To make the frame invisible



If you find the Eye Control frame unnecessary or distracting, you can make it invisible. Eye-controlled focus will continue to operate as before, but you will not see the frame.

1. **Open the CAMERA menu and point the arrow at AF FRAME.**
2. **Select the OFF setting.**
3. **Close the menu.**

## Frame lock



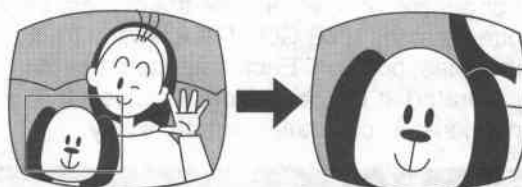
When you have positioned the Eye Control frame by looking at your subject, you can lock the frame at this point by pressing the FRAME LOCK button.

This is useful for two reasons:

- If your subject is stationary, you do not have to keep looking at it.
- The viewfinder now shows the switch screen, allowing you to operate other eye-controlled functions (see p. 41).

Press the FRAME LOCK button again to cancel the switch screen and unlock the frame.

## Eye-controlled Close-up



When you are using eye-controlled focus, the Close-up digital effect (p. 33) will magnify the area around the frame, instead of the centre of the image.

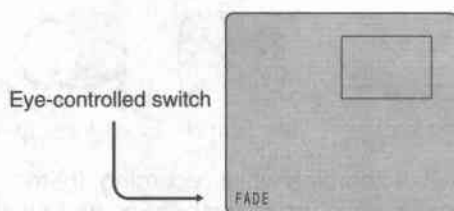
### Notes:

- If Eye Control does not seem to be working well, try calibrating the camera again (without cancelling your previous calibration). Refer to "Troubleshooting" on p. 48 for more information.
- If you take your eye away from the viewfinder, the frame returns to the centre of the screen (unless you are using frame lock).
- If you use Freeze or Close-up effects (p. 33), the frame's position is automatically locked, and it disappears from the viewfinder.



# Eye-Controlled Switches

## The switch screen



When you lock the Eye Control frame by pressing the FRAME LOCK button (p. 40), the switch screen appears in the viewfinder.

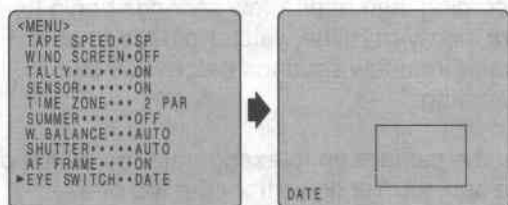
Four different functions can be controlled using the switch screen:

- Fade
- Date and time display
- Title display
- Record review

Only one of these functions is available at a time. Before you start recording, choose the one you want to use, as described below.

Press the FRAME LOCK button again to cancel the switch screen and unlock the Eye Control frame.

## Choosing a switch

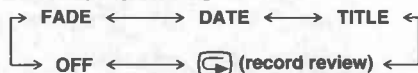


Before you start recording, choose the function you want to operate by Eye Control.

**1. Open the CAMERA menu and point the arrow at EYE SWITCH.**

**2. Select the switch you want to use.**

- Each time you press the + or – button the display changes as follows:



- Select the OFF setting if you do not want an eye-controlled switch to appear each time you use frame lock.

**3. Close the menu.**

- The selected switch appears when you lock the Eye Control frame.

## Operating the switches

The eye-controlled switch that is available at the moment appears in the corner of the screen. You can operate this switch by looking at it.

### Fade

- Keep looking at FADE until the picture fades out. Look away from it to fade in.
- Unlike the digital Fade effect (p. 35), eye-controlled fade can be operated at any time, not just at the beginning and end of a scene.


### Date and time display

- Look at DATE to display the date and/or time (p. 22). Look at it again when you want to cancel the display.

### Title display

- Look at TITLE to display the title (p. 24). Look at it again when you want to cancel the display.

### Record review

- Pause recording and look at  to operate record review (see p. 26).

The eye-controlled switches light up to show that the camera has understood your command.

### Notes:

- The camera remembers which eye-controlled switch you selected from the menu, but it does not automatically return to the switch screen the next time you turn it on. It always begins with the Eye Control frame.
- You cannot use the following controls while an eye-controlled switch is displayed:
  - Counter reset
  - Menus
  - Autofocus on/off
  - Exposure lock and adjustment
  - Digital effects and mixing functions
  - Image stabilizer on/off

# Making Better Videos

## Holding the camera



For maximum stability, place your right hand through the grip belt and keep your right elbow pressed against your body. Rest your left hand lightly on the side of the camera. With practice, you will be able to operate the controls by touch, without taking your eye off the action.

## Using a tripod



To prevent any unwanted movement, you can mount the camera on a tripod, and operate it with the wireless controller.

## Composition



The most important element in the scene does not have to be in the centre. For a more interesting picture, try to position your subject so it is slightly to one side. Leave some space on the side of the frame that the subject is facing or moving towards.



Don't cut off the top of the subject's head, and don't cut people off at the neck, hips or knees (move a little bit above or below).



Watch out for distracting objects in the background.

## Picture angle



Long shot



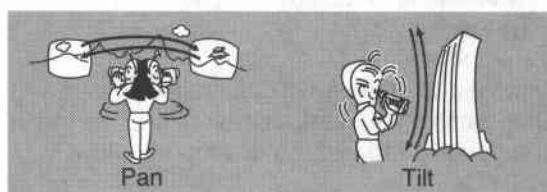
Medium shot



Close-up

Instead of zooming while recording, try to choose your picture angle before you begin. A good way to tell a story with video is to begin with a long shot that establishes the situation, and then move in with medium shots and close-ups to show the details. Remember to change your viewpoint for each shot.

## Camera moves



Use pans to record a landscape or follow a moving subject. Decide the area you want to cover and stand facing the end of your panning angle. Without moving your feet, turn your waist to the starting position. Start recording, and after a few seconds begin to turn slowly from the waist. Hold the final image for a few seconds before you stop recording.

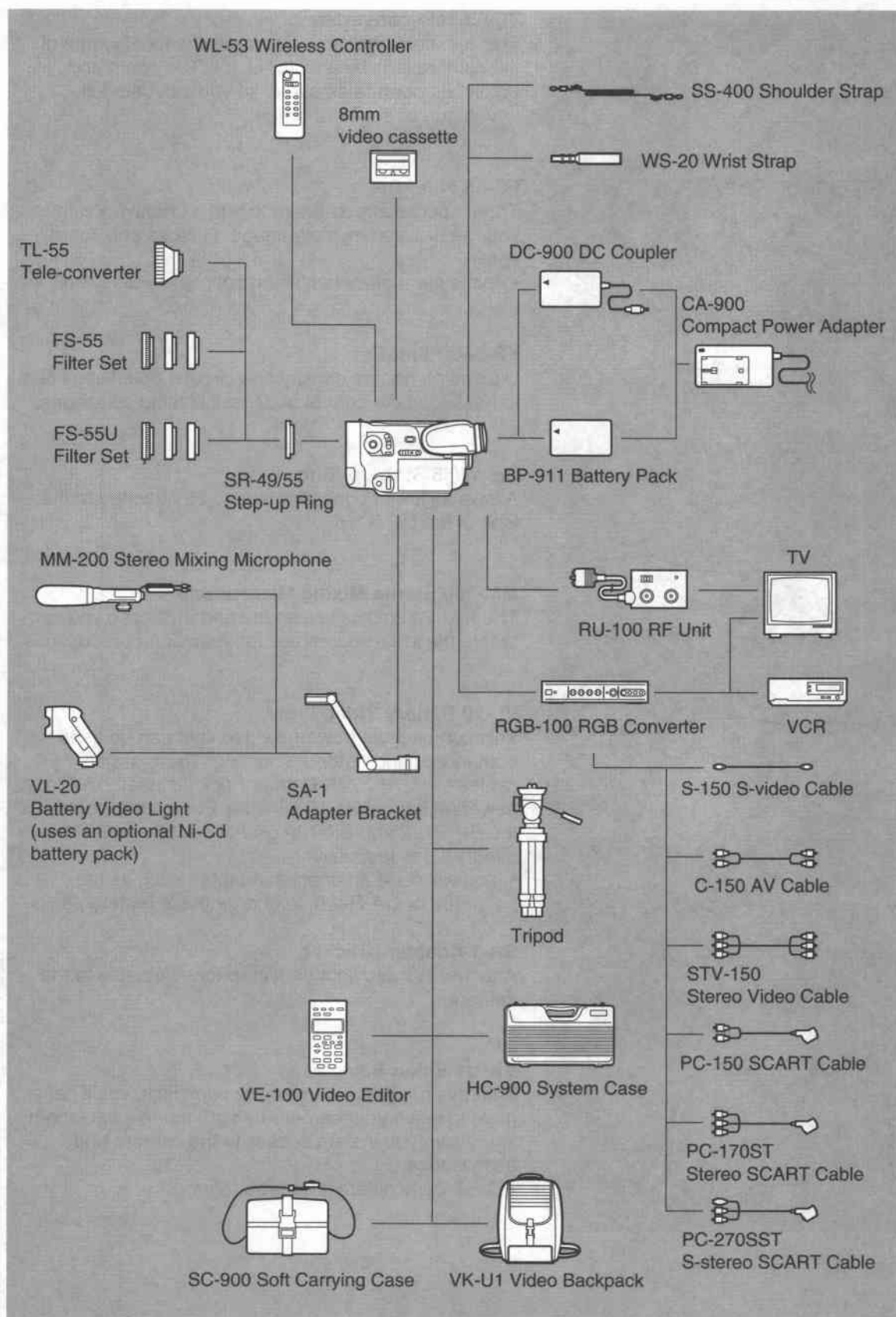
Tilt the camera up to exaggerate the height of the subject. Tilt down from the top of a building, for example, as an introduction to subjects at the bottom.

Remember that any camera movement, or change in picture angle, should have a definite purpose. Avoid unnecessary or half-hearted movements.

### Notes:

- When you are using a tripod, be careful not leave the viewfinder exposed to bright sunlight or it will melt. (The light is concentrated by the viewfinder lens.)
- Make sure that the fastening screw of the tripod is no longer than 6.5 mm (1/4 inch), or it will damage the camera.

# UC-X1Hi Video System



# Optional Accessories

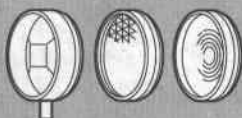
**TL-55**



## **TL-55 Tele-converter**

This tele-converter lens increases the focal length of the camera lens by a factor of 1.4. The zoom and autofocus operate as usual, so you can take full advantage of the extra range.

**FS-55**

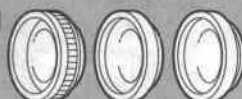


## **FS-55 Filter Set**

Three special effects filters to add a creative touch to your recordings: multiple-image, R-cross and zoom-spot.

- Focus manually when using special effects filters.

**FS-55U**



## **FS-55U Filter Set**

Ultraviolet, neutral density and circular polarising filters to help you take control of difficult lighting conditions.

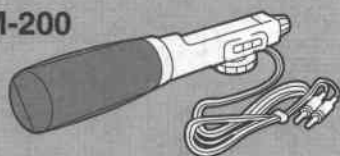
**SR-49/55**



## **SR-49/55 Step-up Ring**

Allows a filter or converter lens to be attached to the lens of the UC-X1Hi.

**MM-200**



## **MM-200 Stereo Mixing Microphone**

The MM-200 mixes live sound and music, so you can create the ideal soundtrack for your video productions.

**VL-20**

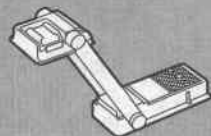


## **VL-20 Battery Video Light**

This compact yet powerful video light can be used for both indoor and outdoor shooting. There are no cables — a BP-E77K Battery Pack fits neatly inside, powering it for up to 15 minutes. For longer recordings, the BP-E722 and BP-729 give about 35 and 50 minutes' use respectively.

- You will need an optional adapter, such as the CA-100 or CA-R200, to charge these battery packs.

**SA-1**



## **SA-1 Adapter Bracket**

Attaches a video light or microphone securely to the camera.

**VK-U1**



## **VK-U1 Video Backpack**

With this rugged, go-anywhere backpack, you'll never have to leave your camera behind. It has a full-length zip to give you instant access to the camera and accessories.

- Availability differs from area to area.

**SC-900**



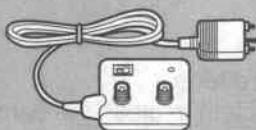
**WS-20**



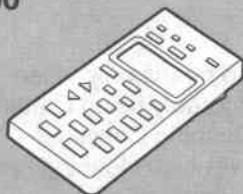
**HC-900**



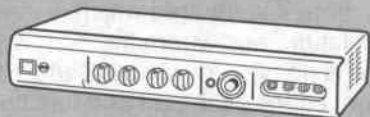
**RU-100**



**VE-100**



**RGB-100**



### **SC-900 Soft Carrying Case**

This lightweight bag keeps the camera within easy reach without weighing you down or getting in the way.

### **WS-20 Wrist Strap**

Provides an extra measure of protection for active shooting.

### **HC-900 System Case**

This solid, lockable case provides safe and stylish protection for the camera and accessories during transportation and storage.

### **RU-100 RF Unit**

This optional converter allows the camera to be connected to the aerial terminal of any TV. It can be a useful accessory while travelling, as you may need it if you want to connect the camera to a TV in your hotel room.

### **VE-100 Video Editor**

This easy-to-use editor controls the camera and a video recorder simultaneously for fast, accurate assembly editing. Not only does it link up to any (LANC) terminal, it can even learn the remote control signals used by most VCRs.

### **RGB-100 RGB Converter**

Even without an S-video input, you can appreciate the difference Hi8 makes — the RGB-100 converts the camera's S-video signal to RGB, and links up with your TV's SCART terminal.

# Cautions and Maintenance

## Cautions

### Avoid high temperatures and high humidity.

- Do not leave the camera near a heater, or inside a car in hot weather, for example.
- Do not take the camera into a humid room.

### Avoid sudden changes in temperature.

- If you take the camera from a cold place to a warm place, condensation may form on the lens and internal parts (see p. 47).

### Do not point the lens at strong light sources.

- Never point it at the sun, and do not leave it aimed at a bright subject.
- Be especially careful when leaving the camera on a tripod.

### Avoid magnetic or electric fields.

- Do not use the camera close to power plants, TV towers, TV sets, audio equipment or electric motors, as this may cause noise in the picture or a camera malfunction.

### Do not expose the camera to water.

- Cover the camera when you are recording in light rain or mist.
- There is a risk of electric shock if water gets inside the camera — contact qualified service personnel as soon as possible.

### Always replace the lens cap.

- Sand and dust can damage the lens — be especially careful on windy days.

### Handle the camera gently.

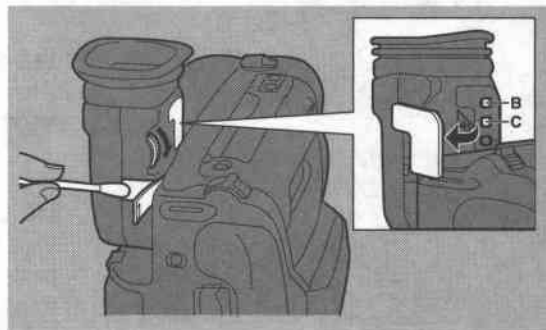
- Vibration or shock can cause damage.

### Do not disassemble the camera.

- This is very dangerous as there is a risk of electric shock — if the camera does not function properly, take it to qualified service personnel.

## Maintenance

### Viewfinder



- To clean the viewfinder screen, remove the small rubber plug on the bottom of the viewfinder, turn the viewfinder focusing wheel to lower the screen, and insert a dry cotton swab, as shown.
- The viewfinder picture can be adjusted when necessary by removing the cover on the side of the viewfinder, and turning the screws marked B (brightness) and C (colour).

### Camera body and lens

- Use a soft, dry cloth to clean the camera body or lens. Never use chemically treated cloth or volatile solvents such as paint thinner.

### Video heads

- Clean the video heads only when necessary, preferably using Canon's CC-8 Video Head Cleaning Cassette.
- Do not use a wet-type cleaning cassette, as this can cause damage.

## Storage

If you do not intend to use the camera for some time, store it in an area which is free of dust and moisture, and where the temperature is no higher than 30°C (86°F). After storage, check each part and function of your camera to make sure everything is still working properly.

### Note:

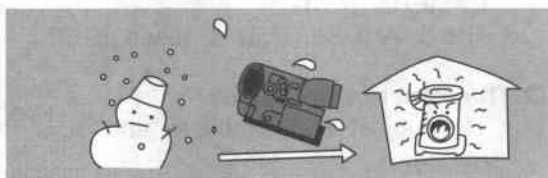
- These cautions also apply to accessories such as battery packs and cassettes.



## Condensation

Condensation may form on the camera when it is moved from a cold place to a warm place. Using the camera while condensation is present can damage both the tape and the camera.

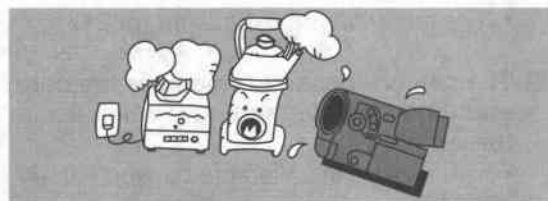
Condensation may become a problem:



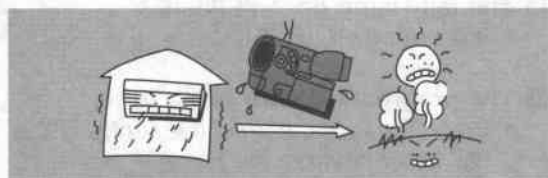
When you bring the camera from a cold place to a warm room



When a cold room is heated rapidly



When the camera is left in a humid room




When the camera is taken from an air-conditioned room to a warm, humid place

### Protecting the camera from condensation

- Before you bring the camera to a warm or humid place where condensation is likely to be a problem, unload the cassette and put the camera in a plastic bag. Wait until the camera reaches room temperature before you take it out of the bag.

### What happens when condensation is detected

- The operation indicator flashes and the  mark flashes in the viewfinder. If there is a cassette in the camera, it stops automatically and EJECT flashes in the viewfinder.
- The camera may not detect the condensation immediately — the condensation warning may not start flashing for 10 to 15 minutes.
- You cannot load a cassette when condensation is detected.

### What you should do

- Remove the cassette, leave the cassette compartment open, and turn the camera off.
- Leave it in a dry place until the condensation evaporates. After the condensation warning stops flashing, wait at least another hour before trying to use the camera.

## Using the camera abroad

### Power sources

- You can use the compact power adapter to operate your camera and charge battery packs in any country where the electricity supply is between 110 and 240 V AC, 50/60 Hz. Contact your Canon dealer for information about plug adapters for overseas use.

### TV playback

- Although you can always play back your recordings in the viewfinder, your camera can only be connected to TVs which use its PAL system. This TV system is used in the following countries:

Algeria, Australia, Austria, Bangladesh, Belgium, Brunei, China, Denmark, Finland, Germany, Hong Kong, Iceland, India, Indonesia, Ireland, Italy, Jordan, Kenya, Kuwait, Liberia, Malaysia, Malta, Mozambique, the Netherlands, New Zealand, North Korea, Norway, Oman, Pakistan, Portugal, Qatar, Sierra Leone, Singapore, South Africa, Spain, Sri Lanka, Swaziland, Sweden, Switzerland, Tanzania, Thailand, Turkey, Uganda, United Arab Emirates, United Kingdom, Yemen, former Yugoslavia, Zambia

# Troubleshooting



Refer to this checklist first if you have any problems with your camera. Possible explanations are given below each problem on the list — turn to the page numbers in brackets for more information.

Make sure that the camera is properly connected if you are using it with a TV or VCR.

Consult your dealer or service outlet if problems persist.

## **2 The camera won't turn on.**

- The battery pack is exhausted (p. 9).

## **2 The operation indicator is flashing.**

- Check the viewfinder displays (p. 50).

## **2 The start/stop button doesn't work.**

- The OPERATE switch isn't set to CAMERA (p. 6).
- You haven't loaded a cassette, or it is set for erasure prevention (p. 11, 25).

## **2 Nothing happens when I press the buttons.**

- You haven't turned the camera on (p. 6, 13).
- You haven't loaded a cassette (p. 11).
- The battery pack is exhausted, or not properly attached (p. 8).
- You have selected the Easy Recording program (p. 27).
- An eye-controlled switch (p. 41) or one of the menus (p. 20) is displayed in the viewfinder.
- The tape has reached the end (p. 11).

## **2 The camera turned itself off.**

- You left it in record pause mode for more than about five minutes (p. 7).
- The battery pack is exhausted (p. 8).

## **2 There's no picture in the viewfinder.**

- You haven't taken off the lens cap (p. 12).
- The OPERATE switch isn't set to CAMERA (p. 6).
- The STANDBY cover is closed (p. 6).

## **2 The camera won't focus.**

- The subject isn't suitable for autofocus (p. 30).
- Autofocus (or eye-controlled focus) is turned off (p. 30, 40).
- Eye-controlled focus is not set properly (see p. 39 and below).
- The subject is closer than the minimum focusing distance (p. 18).
- The viewfinder needs adjusting (p. 12).
- The lens is dirty (p. 46).

## **2 The wireless controller doesn't work.**

- The remote sensor is turned off (p. 21).
- The batteries are exhausted (p. 21).

## **2 The camera doesn't remember the date and time (or other settings) when it's turned off.**

- You haven't installed the backup battery (p. 10).

## **2 The tally lamp doesn't flash.**

- It is turned off (p. 25).

## **2 The program selector won't turn.**

- Press the lock button in the centre of the dial to switch from the Easy Recording or Auto programs (p. 27).

## **2 The digital functions (zoom, effects or mixer) don't work.**

- The digital functions switch has three different positions. (You can only use one type of function at a time). Make sure the switch is set properly (p. 18, 33, 35).
- Digital effects and mixing functions cannot be used if you have selected the Easy Recording program (p. 27).

## **? The playback picture is rough.**



- If your recordings do not play back smoothly, clean the video heads (p. 46).

## **? The PLAY ► button doesn't work.**

- The OPERATE switch isn't set to PLAY (p. 13).
- You haven't loaded a cassette (p. 11).
- The tape has reached the end (p. 11).

## **? There's no picture on the TV screen, even though the tape is moving.**

- The video heads need cleaning (p. 46).
- The TV/VIDEO selector on the TV isn't set to VIDEO (p. 15).
- If the camera is connected using the RF unit, you haven't selected the video channel (p. 16, 17).

## **? The soundtrack doesn't play back properly.**

- You have selected a bilingual playback setting (p. 37).

## **? Eye Control doesn't work.**

- You haven't set the EYE CONTROL switch (p. 39).
- You haven't calibrated the camera (see p. 39 and below).
- Conditions have changed between calibrating the camera and using Eye Control. If there is a change in lighting conditions (if you go outside, for example) you should calibrate the camera again, without cancelling the previous calibrations. However, a major change (such as putting on glasses) means that you should first cancel the previous calibrations by pressing the C. RESET button, as described on p. 39.
- More than one person has been using the same Eye Control number. Calibrate the camera again, and cancel the previous calibrations.
- Eye Control is working, but the Eye Control frame has been turned off (p. 40).

## **? I can't calibrate the camera.**

- You didn't keep your eye to the viewfinder during calibration.
- You moved the camera, or didn't hold it straight.
- You blinked, moved your eyes suddenly or didn't look straight into the viewfinder.
- The sun was shining in your eyes.
- Your hair was in your eyes.
- You were wearing mirrored or multi-coated glasses, or your glasses weren't on straight.

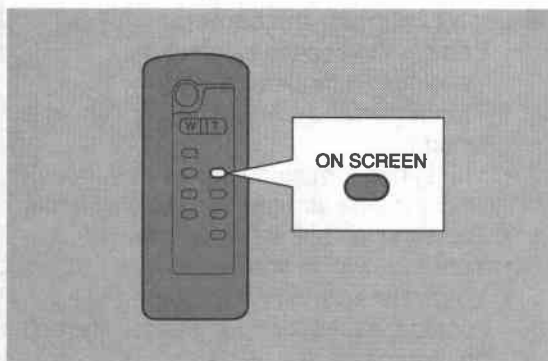
## **? There are air bubbles inside the lens.**

- This is unlikely, but may happen if you use the camera in places where the air pressure is very low, in an aeroplane for example. The bubbles will disappear a week or so after you return the camera to normal atmospheric pressure.

## **? Malfunction**

- External interference may cause the camera's microprocessor to malfunction temporarily. If random letters appear in the viewfinder or if normal operation is interrupted, remove and then replace the power source (and if necessary, the backup battery).

# Viewfinder Displays




Most of the viewfinder displays can be made to appear on a connected TV screen by pressing the wireless controller's ON SCREEN button (the displays turn white).


During recording, or in record pause mode, only the date/time and title can be made to appear on the TV screen. If you want to see other displays (such as the CAMERA menu) on-screen, do not load a cassette.

 indicates a flashing display.

 Record pause mode (p. 6)


 Recording (p. 6)


 A digital mixing function (Wipe, Window or Fade) is being used to end the scene (p. 36).

 The backup battery is not properly installed, or needs replacing (p. 10).

 Shows how much battery power remains (p. 9).


 The battery pack is exhausted (p. 9).


 No cassette is loaded, or it is set for erasure prevention (p. 11).

 Shows how much tape remains (the minute display does not appear during playback) (p. 11).


 The tape has reached the end (p. 11).

 Hi8 recording or playback (p. 11)

 The camera is ejecting the tape (p. 11).

 The safety mechanism is activated. Unload the cassette and turn the camera off. Turn it on again and reload the cassette.

 Playback is stopped (p. 13).


 Normal playback, fast forward playback, rewind playback or high-speed search (p. 13)

 Still playback (p. 13)

 Fast forward (p. 13)

 Rewind (p. 13)

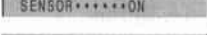
 Tape return (forward and reverse) (p. 13)

 Zoom display (p. 18)


 The Optical Image Stabilizer is turned on (p. 19).











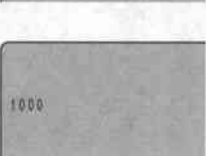


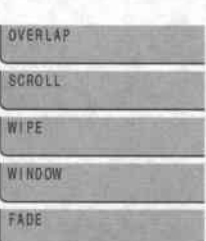
 CAMERA menu (p. 20)



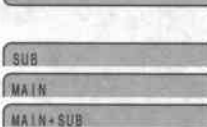


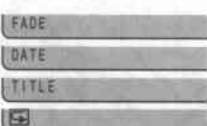
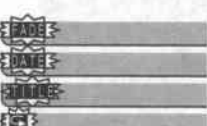

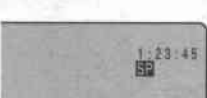
 PLAY menu (p. 20)

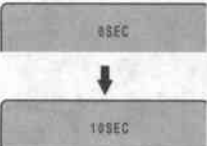
 The remote sensor is turned off (p. 21).

 Date and time (p. 22)

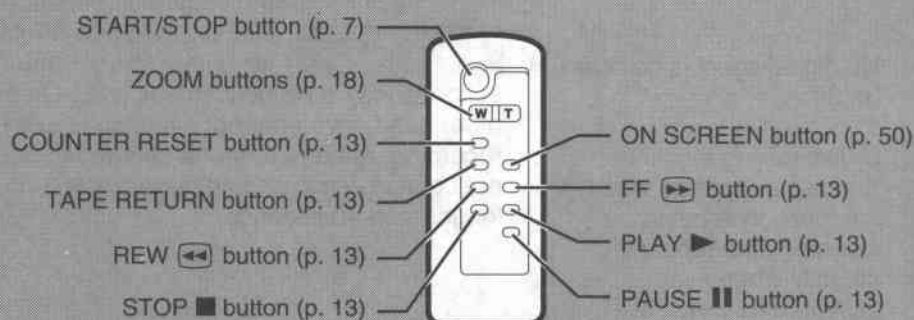
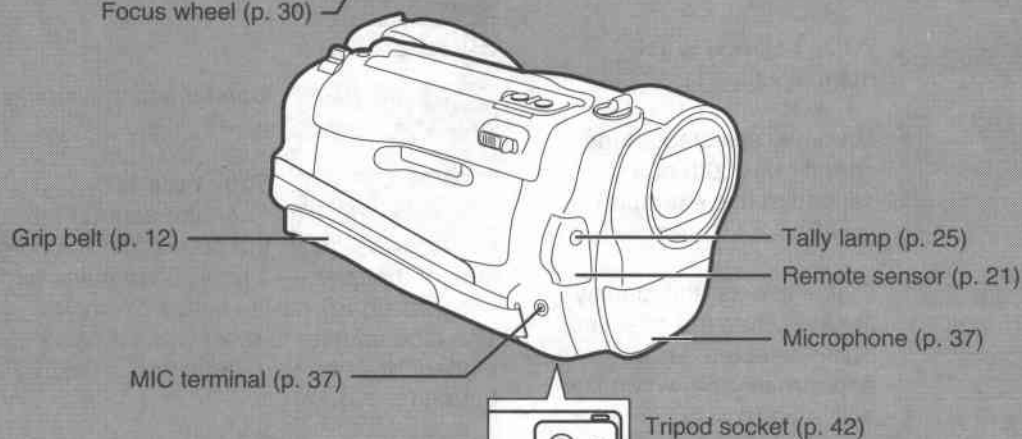
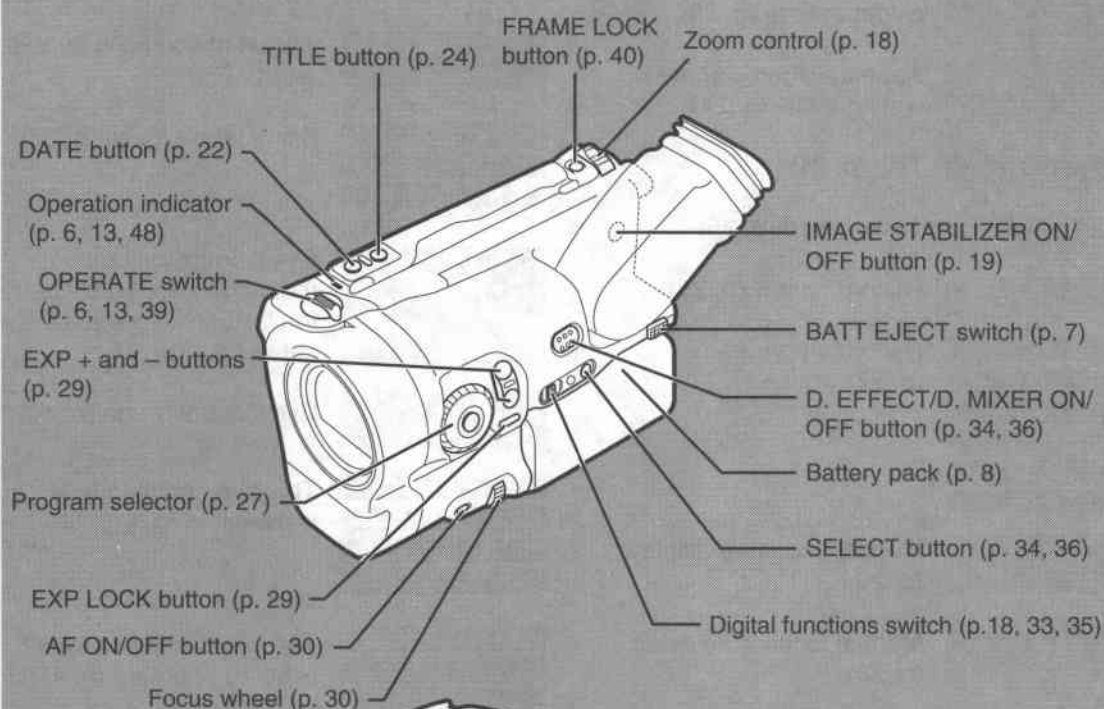
 The date and time have not been set. This display will not be recorded (p. 22).

	World clock (p. 23)
	Summer time (p. 23)
	Appears when you are writing a title (p. 24).
	Title (p. 24)
	Tape speed (p. 25)
	Record review (p. 26)
	Recording programs (p. 27)
	Manual exposure display (p. 29)
	Manual focus is selected (p. 30).
	White balance is set manually (p. 31).
	Manually selected shutter speed (1/1000th of a second in this example) (p. 32)
	Digital effects: the display flashes when the effect is being selected, and appears steadily when it is activated (p. 34).
	No digital effect is selected (p. 34).
	Digital mixing functions: the display flashes when the function is being selected and appears steadily when it is activated (p. 36).

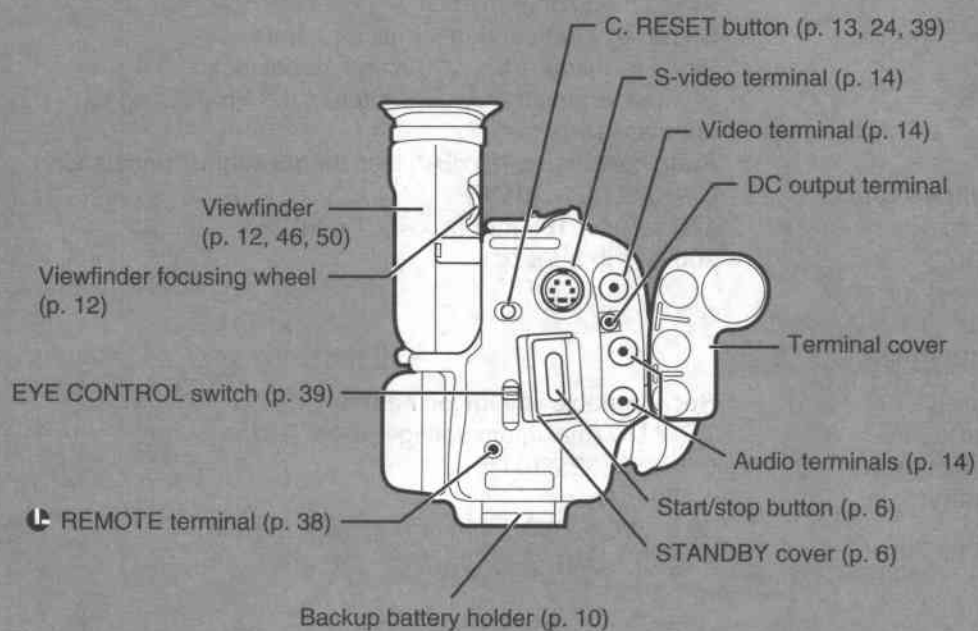
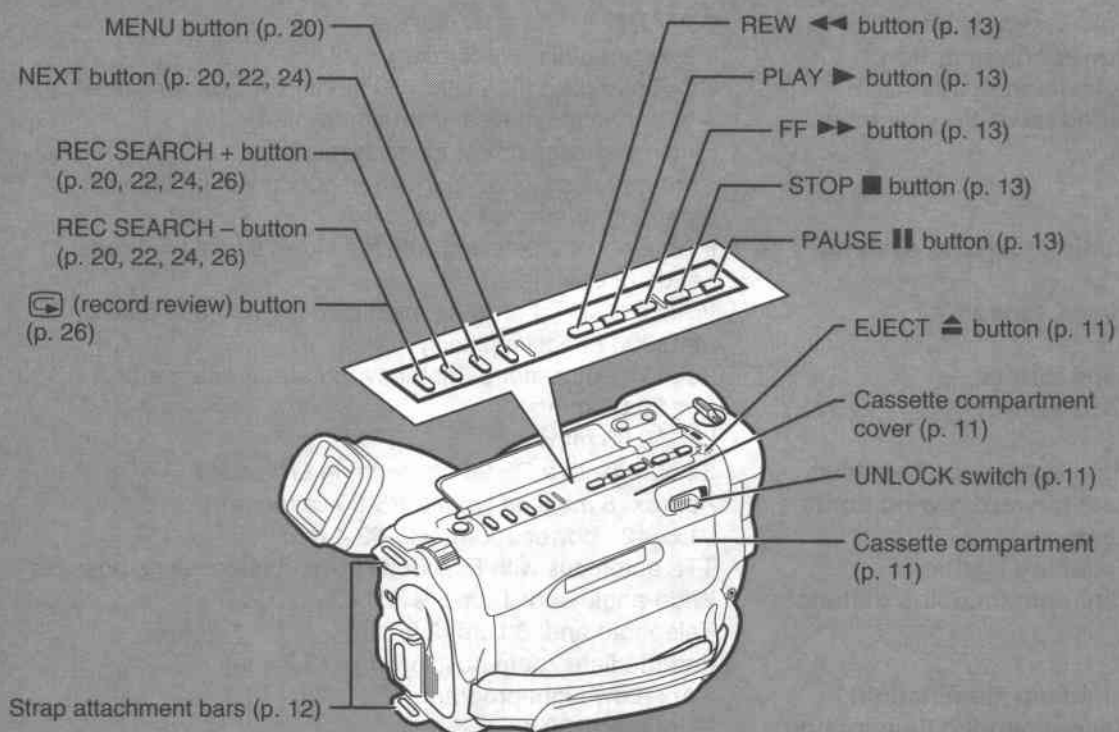
	No mixing function is selected (p. 36).
	The wind screen is turned on (p. 37).
	Bilingual playback (p. 37)
	Eye Control calibration: the display appears when the OPERATE switch is set to CAL (p. 39).
	Eye Control frame (p. 40)
	This eye-controlled switch is available (p. 41).
	The eye-controlled switch is being operated (p. 41).
	Condensation warning (p. 47)
	<b>Tape counter</b> The tape counter indicates the approximate running time of the tape — 1 hour, 23 minutes and 45 seconds (in SP mode) in this example. The tape counter is reset when a cassette is loaded, or when you press the C. RESET button (p. 13).

	<b>Recording reminder</b> When you start recording, the camera counts from 0SEC to 10SEC. Shots which are shorter than 10 seconds may be difficult to edit later. On the other hand, if you are not planning to edit the recording, remember that a shot which does not contain action should generally last no longer than 10 seconds.
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# Nomenclature







# Specifications

## UC-X1Hi

<b>Power supply (rated):</b>	7.2 V DC
<b>Power consumption:</b>	7.7 W (autofocus recording)
<b>Television system:</b>	CCIR standard (625 lines, 50 fields) PAL colour signal
<b>Video recording system:</b>	4 rotary heads, helical scanning system Luminance signal: FM azimuth recording Chrominance signal: Converted subcarrier phase shift recording (8mm video standard)
<b>Audio recording system:</b>	Frequency multiplexing with the video signal by 4 rotary heads (2 channels)
<b>Image sensor:</b>	1/3-inch CCD (charge-coupled device), 470,000 pixels (440,000 effective pixels)
<b>Tape format:</b>	8mm video cassette, metal evaporated/metal particle
<b>Tape speed:</b>	SP: 20.05 mm/s LP: 10.03 mm/s
<b>Maximum recording time:</b>	3 hours (with a P5-90 cassette, in LP mode)
<b>Fast forward/rewind time:</b>	Approx. 8 minutes (with a P5-90 cassette)
<b>Lens:</b>	f/1.8, 12× power zoom, 5.2–62.4 mm
<b>Focusing system:</b>	TTL autofocus with Eye Control, manual focusing possible
<b>Minimum focusing distance:</b>	Wide-angle end: 1 cm (3/8 in) Telephoto end: 80 cm (2 ft 8 in) Intermediate zoom position: 1 m (3 ft 4 in)
<b>Minimum illumination:</b>	3 lux (Low Light program)
<b>Recommended illumination:</b>	More than 100 lux
<b>Filter diameter:</b>	55 mm (using the optional SR-49/55 Step-up Ring)
<b>Electronic viewfinder:</b>	0.7-inch colour LCD with 166,000 pixels
<b>Input level:</b>	External microphone: –64 dBV/600 ohms, unbalanced
<b>Input impedance:</b>	External microphone: More than 6 kohms (using a 600 ohm mic)
<b>Microphone:</b>	Stereo electret condenser microphone
<b>Output level:</b>	Video terminal: 1 Vp-p/75 ohms, unbalanced S-video terminal: 1 Vp-p (Y signal), 0.3 Vp-p (C signal), unbalanced Audio terminals: –10 dBV, less than 3 kohms, unbalanced
<b>Operating temperature:</b>	0°–40°C (32°–104°F)
<b>Dimensions:</b>	100 × 101 × 188 mm (4 × 4 × 7 1/2 in)
<b>Weight:</b>	700 g (1 lb 8 13/16 oz)

## BP-911 Battery Pack

<b>Battery type:</b>	Rechargeable lithium ion battery
<b>Rated voltage:</b>	7.2 V DC (maximum voltage: 8.4 V DC)
<b>Operating temperature:</b>	0°–40°C (32°–104°F)
<b>Battery capacity:</b>	1,150 mAh
<b>Dimensions:</b>	38.2 × 20.5 × 70.5 mm (1 1/2 × 13/16 × 2 13/16 in)
<b>Weight:</b>	96 g (3 5/16 oz)

Weight and dimensions are approximate  
Errors and omissions excepted.  
Subject to change without notice.

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